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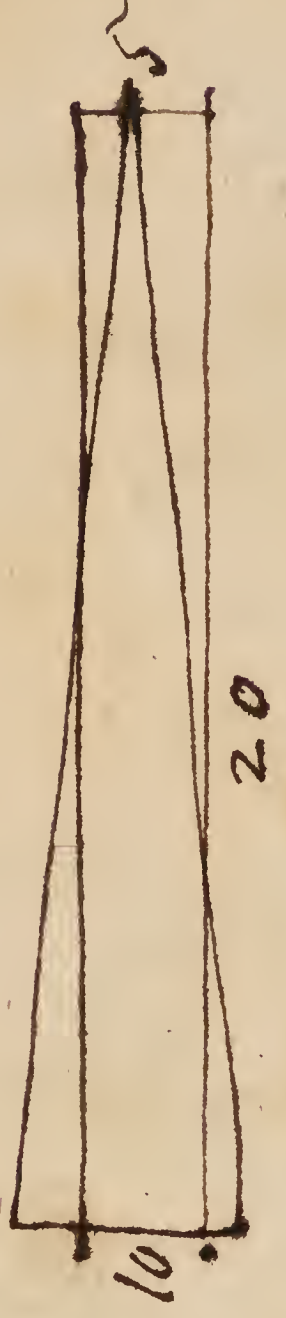

Ego laudo ruris amoeni
Rivos, et musco circumlita Saxa, nemus que.
Hor.

Muſeum Ruſticum et Commerciale:

OR,

SELECT PAPERS

ON

AGRICULTURE, COMMERCE, ‖ ARTS, AND MANUFACTURES;

DRAWN FROM EXPERIENCE,

AND

Communicated by GENTLEMEN engaged in theſe Purſuits.

Reviſed and Digeſted by ſeveral MEMBERS of the SOCIETY for the Encouragement of ARTS, MANUFACTURES, and COMMERCE.

VOLUME THE FIRST.

Hæ tibi erunt Artes.

LONDON:
Printed for R. DAVIS, in Piccadilly; J. NEWBERY, in St. Paul's Church-Yard; and L. DAVIS and C. REYMERS, in Holborn.
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THE PRESIDENT AND VICE PRESIDENTS

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IN THE BRITISH DOMINIONS,

THIS SELECT COLLECTION

OF ORIGINAL PAPERS

ON AGRICULTURE, COMMERCE,

ARTS, AND MANUFACTURES,

IS ADDRESSED BY THE EDITORS.

PREFACE.

LONG before the actual publication of any part of this collection, the editors were ſanguine in their expectations of ſucceſs; and it is with gratitude they now acknowledge their obligations to the public for the great regard paid to their undertaking; a regard which has been teſtified, not only by a moſt extenſive ſale of their work, but by many valuable papers on ſcience, and letters of compliment, which they have received from gentlemen reſiding in the different counties of Great-Britain and Ireland, and even from ſome of the moſt learned and ingenious profeſſors of agriculture and arts in other parts of Europe.

The public-ſpirited Monſ. du Hamel laments that there is not in France ſome channel of intelligence opened, by means of which the farmers in one part of the kingdom might tranſmit to the other provinces their uſeful knowledge: if this is a deſireable thing in France, where agriculture is as it were in a ſtate of infantine weakneſs, it is certainly much more ſo in England, as our methods of practice are, undoubtedly, by far more rational, though ſtill diſtant from the wiſhed-for point of perfection.

We flatter ourſelves, that by this publication the above purpoſe will be fully anſwered, which may be of great benefit, not to this nation only, but to mankind in general. Many ingenious gentlemen, who are able to write from their own experience, are now added to our original correſpondents, and from their joint labours we have the warmeſt expectations. It is, however, to be lamented, that we are not permitted to diſcloſe the names of many of our benefactors, ſome of whom ſtand ſo high in the learned world, that their ſanction would carry into practice many excellent precepts, which have now nothing to ſupport and recommend them, their own intrinſic merit excepted. But while we thus notice the reſerve of our anonymous correſpondents, we hope none will think we undervalue the great favour conferred on us by the gentlemen whoſe names

do

do honour to the pages of this volume: we are truly ſenſible of what is due to them, and acknowledge our obligations with gratitude and reſpect.

In theſe our acknowledgements, it would be unpardonable to be ſilent with reſpect to the ſociety for the encouragement of arts, manufactures, and commerce, of which we have the honour to be members. Many of the individuals of that truly-noble ſociety have been already thanked in the number of our correſpondents: we now addreſs the body collectively, and particularly thoſe worthy patriots who preſide over the whole, and to whom we are obliged for their conſtant and impartial attention to the improvers of agriculture and arts. Without their well-directed premiums, many of the diſcoveries which we have tranſmitted to poſterity would have been loſt; thoſe whom nature formed for improvements have exiſted in obſcurity; and numberleſs valuable papers been buried in the ruſt of antiquity, or ſunk in the wreck of time. From theſe, and other good effects already produced, it is moſt certain that this ſociety, which daily encreaſes in wealth, in ſtrength, and in reputation, will be an honour to the kingdom, and a bleſſing to mankind.

With reſpect to the work itſelf, the judicious reader will obſerve, that we have for his emolument endeavoured to collect and concentrate the experience of the learned in agriculture and arts into a ſmall compaſs; ſo that in theſe volumes he may know the ſentiments, and ſee the practice, of thoſe who are moſt eminently ſkilled in the works of nature, or moſt earneſtly intent on the improvement of art, and may profit from the experience of others without ſharing their toils, their difficulties, or diſappointments.

This collection does, and will contain, not only ſuch curious papers as have been preſented to the ſociety, of which copies are from time to time procured from the reſpective writers, but alſo various other important articles from the moſt ingenious naturaliſts and artiſts in Europe and America.

Thus enriched, it cannot fail of obtaining the encouragement due to its own intrinſic merit; we ſay its own merit, for the editors claim no other praiſe but what may naturally fall to their ſhare, for exerciſing their judgment in reviſing the papers, and ſelecting ſuch as are moſt likely to be of public benefit.

On the perfection of huſbandry depends, in a great meaſure, the encreaſe of commerce; and as agriculture is far from being generally in a very improved ſtate in theſe

kingdoms, preference is given to papers written on that ſubject.

The uſe of this collection will, it is preſumed, be very extenſive. The nobility and gentry may gratify that curioſity ſo laudable in perſons of their elevated rank; the artiſt, or manufacturer, will find many uſeful hints tending to improve his particular branch; and the farmer and gardener diſcover, treaſured up in theſe volumes, a ſtock of knowledge not eaſily exhauſted.

The intelligent and experienced reader will, perhaps, imagine, that ſome of the practical obſervations in huſbandry, which he will find in this work, are already too well known to merit a place; but when he conſiders, that what is common in one county may be very little known in other parts of the kingdom, he muſt acknowledge the propriety of our conduct in this reſpect.

Hitherto only the utility of this work has been conſidered, that indeed being the principal object: yet, from the variety of ſubjects introduced, and the abundant matter which our volumes will contain, ſuch rational amuſement may be expected, as will enable the gentleman to ſpend his hours of diſſipation with pleaſure and profit, and produce an agreeable relaxation to thoſe who are engaged in ſeverer ſtudies.

Our volumes being intended to regiſter and preſerve all the diſcoveries and remarks that are new, curious, and valuable, in agriculture, commerce, the arts, manufactures, or ſciences; all uſeful letters on theſe ſubjects will find a place; and whenever the intelligent huſbandman, or practical gardener, is inclined to add any part of his experience to the public fund, as utility is more attended to than elegance of ſtyle, his communications will meet with a favourable reception. Hence ariſes that variety which has been ſo pleaſing to the readers of theſe papers; hence that diverſity in the manner of treating the ſame ſubjects. The opinions of correſpondents may often differ, but they are ſeldom incongruous.

It is not to be doubted but that a publication, opened particularly for collecting and preſerving papers on theſe important ſubjects, will induce gentlemen to contribute all their uſeful obſervations; which, but for ſuch a ready repoſitory, would be either loſt, or ſo publiſhed as to be of little ſervice to the community.

The editors have, with reſpect to the ſeveral matters treated of in this collection, formed to themſelves opinions; yet would they

they not obtrude their opinions on the reader; nor is it their desire to controvert the reasonings of their correspondents. They wish to be thought absolutely impartial; and if a sentiment is now and then hazarded, by way of illustrating what may to them seem obscure, as they lay no claim to infallibility, they would be glad to stand corrected. Neither do they take upon them to defend the doctrines of others; the work is miscellaneous, not systematical: and, should any reasonings be advanced, which may have the appearance of art, or not be conclusive, they will with chearfulness give place to a dispassionate refutation.

We have only to add, that having already experienced the great encouragement an impartial public is capable of affording, we presume to hope for a continuance of that favour without which our work cannot subsist: it is almost unnecessary to say, we mean an extensive correspondence with the intelligent, ingenious, and experienced members of society.

N. B. *The capital letters annexed to the notes refer to the respective editors who added them on perusing the pieces.*

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The Title and Advertisement formerly prefixed to Number I. are to be cancelled.—The Frontispiece to face the Title to Vol. I.—The Table of Contents to follow the Preface.—The Numerical Table for measuring Land to face Page 467. the Remainder of the Plates facing the Pages marked on them.

Muſeum Ruſticum, &c.

NUMBER I.

A Letter from C. W. *Eſq; Member of the Society for the Encouragement of Arts, Manufactures, and Commerce, to the Editors, deſcribing the* Kentiſh *Method of gathering and curing Hops.*

GENTLEMEN,

AS you invite all correſpondents on theſe uſeful branches of huſbandry and gardening, I the more willingly take pen in hand, in hopes to induce others to communicate their knowledge of facts, that the ignorant may thereby receive inſtruction, and the whole community improvement.

The article I ſhall enlarge upon is the gathering and curing of hops, which I have not yet ſeen thoroughly and truly deſcribed in print. I ſhall omit the planting, becauſe I ſuppoſe many converſant therein; or, if required, it may be inſerted in ſome future letter*. And as the methods are various, in different parts of the kingdom, of picking and

* As we think the Kentiſh method of planting hops to be at leaſt equal to any practiſed in England, the editors would eſteem it as a particular obligation conferred on them, if the member, who favoured them with this letter, will ſend them a deſcription of the method of planting and managing a hop-garden, as now in uſe in Kent.

drying, I propoſe to ſet forth what is practiſed in our county; not being reſtrained with that partial and ſelfiſh view of keeping all knowledge to ourſelves, and hiding our candle under a buſhel.

The time when the hops are chiefly ripe is about the latter end of Auguſt, or the beginning of September; at which ſeaſon ſwarms of poor people travel from their homes to aſſiſt in the getting in that harveſt; for whoſe reception commodious thatched houſes or barns are provided by the planter.

It is adviſeable to have a forward ſort to begin upon, to keep the hop-pickers employed till the others are fit to gather; and when hops are once ripe, there cannot be too much expedition uſed in picking them, they are ſo ſubject to be ſpoiled by rains, wind, and froſt, which uſually happen at that time of the year: though, on the other hand, if you ſhould ſet on ſo many pickers as may ſoon finiſh the garden, it will be ſo little profit to each, that they will not only make a murmuring, but on a future year they will not work for you *; and I have known many perſons obliged to be at a conſiderable expence to entice hoppers, when there has been a ſcarcity of hands.

The uſual way is to pick by the buſhel, at a penny, three-halfpence, or two-pence, varying according to their hanging eaſy or fair to gather, or otherwiſe, and according to the quantity. And that there may be an equality of gain to each, the hoppers themſelves aſſociate in ſets of ſuch as they know are good hands, which are called *binns*, and conſiſt of ſix *pickers*, and a perſon to pull poles, who is termed the *binn-man*: and theſe are arranged three on each ſide their *binn*, which

* This gentleman obſerves, that when the hops are ripe, too much expedition cannot be uſed in picking them, on account of the accidents to which they are ſubject: and he adds, that if there are too many pickers, the profit to each would be but trifling. It ſeems difficult for the planter to manage this matter properly, ſo as to get in his crop in good order without diſguſting his pickers.—Emulation and a deſire of gain do great matters: we would therefore recommend it to the planters, to give a premium every day to that binn which picks moſt hops within the hours allotted for work, as we imagine by this means his harveſt would be greatly forwarded, without his being under a neceſſity of over-ſtocking the garden with pickers, &c.

which is an oblong wooden frame, with a cloth tacked round the edges, and hanging down as a large bag open on one of its ſides. At each end of the ſaid frame there is a piece of wood, erect, with a notch in it, in which notch lies the end of a pole, the length way of the frame; and againſt that, on each ſide the binn, the man lays the poles, as he raiſes them out of the ground, for the pickers to pull the hops off from them.

The *overſeer* of a ground is to take particular care that the hops be picked as clear from ſprigs and leaves as well may be: and when the *binns* are full, the *overſeer* goes round with his buſhel-baſket, and *tallies* to ſcore upon, and meaſures and ſhoots them into a kind of long ſack, called a *poke*: theſe *pokes* are, when full, tied at the end with an hop-bind, and carried in a cart or waggon, or by ſome other manner of conveyance, to the *ouſt-houſe*, where the hops are to be dried.

This leading to the deſcription of the *ouſt*, it is built with fire-places in the nature of malt-kilns; and at a proper diſtance over the fire is an hair-cloth ſtrained upon laths; and thereon the hops are laid, and raked even to the depth of about ſix or ſeven inches, for the better conveniency of drying them equally; and when they are properly cured on the under ſide, they are carefully turned; and by that means the upper ſide becoming the under, the whole ſhares the fire alike. The perſon that performs this part is called the *dryer*, whoſe buſineſs it is to manage the fires.

The fuel commonly made uſe of is charcoal, for its freeneſs from ſmoak, and affording a ſteady heat. Great nicety is required in this part; a ſmall fire being to be made at firſt, that they may heat gradually, and ſo raiſed as they dry, that it may be done without ſcorching; and the fire is to be lowered by degrees, againſt they are ready to be taken off: the time required is about eight hours.

But as charcoal is of great price, being three or four pounds per load, many people have got into the way of drying with ſea-coal upon *cockle-ouſts* *, which are ſquare iron boxes placed

* A perſon has lately claimed the merit of having invented a new method of drying hops with ſea-coal, or any kind of fuel whatever, by means of a moveable iron furnace; it is in form of an

upon brick-work, and a flue and chimney in the back part of the building for the ſmoke to go off. The computation is, that a chaldron of ſea-coal, at about twenty-four ſhillings, will dry a load of hops, and that a load of charcoal will do no more. 'Tis indeed expenſive to erect ſuch *ouſts*, as there muſt be no timber near them; and an iron beam and iron laths are to be uſed, and they covered with plates of tin or iron properly faſtened together.

When the hops are thus dried, they are ſhovelled off into the chamber, where they lie till cool, and, as it is termed, *the fire gone out of them*: they are then bagged, which is done in a long ſack of coarſe or fine hop-bagging, according to their quality; the open end of which is faſtened to a round hoop, and put into an hole cut in the upper floor; and a man goes down into it as it is hanging: the hops are ſhovelled in upon him by little and little, and he treads them under him with his feet, the cloſer the better: he is called the *bagger*. The weight of a bag ſhould be two hundred and an half, and of a pocket in fine cloth, one hundred and a quarter.

After they are thus bagged, of which the exciſeman is to have proper notice, they are weighed by him and marked, and the duty of one penny a pound charged thereon: a very heavy article upon ſo expenſive and uncertain a commodity! I have thus gone through the ſeveral parts I promiſed, and ſhall, upon other opportunities, be glad to ſend you any remarks on ſuch ſubjects as may occur. I am,

Kent, GENTLEMEN,
Sept. 1763. Your humble Servant,

To Meſſrs. Davis *and* Reymers, *for the Editors of the* Muſeum Ruſticum. C. W.

an horizontal cylinder ſtopped at both ends: it lies on an iron carriage, which rolls on four iron wheels: in the fore-end of the cylinder is the furnace door, and a hollow iron flue runs in an horizontal direction along the upper ſurface of the cylinder from the back till it reaches the fore-end of it, when it takes a vertical direction, and is carried as high as is neceſſary to convey the ſmoke out of the ouſt. We cannot pretend to ſay what are the particular advantages reſulting from the uſe of this rolling furnace, never having ſeen it at work. N.

NUMBER II.

* *A Letter from Mr.* John Irwin, *to* ——— ———, *Esq; on the Culture of Flax in the* Mahera, *a District of the County of* Roscommon, *in* Ireland.

DEAR SIR,

BEING very sensible of your great desire to promote the public good, I can no longer resist the promise I made you, of putting together some of the common practical methods of our Irish husbandry, in use in that part of the kingdom where I hold land, and which, by repeated trials, have come within the course of my own knowledge; so that (very unlike many others who treat of husbandry) I shall speak from facts, not from conjectural theory.

I will make no apology to you for our aukward, and in many respects imperfect, manner of farming in Ireland: we are yet but in the infancy of shaking off our old prejudices; however, we have a great desire to improve, and are accordingly getting forward apace; so that before the end of this century, if no domestic troubles happen, the external cultivated appearance of this country will be little different from that of England. If, therefore, we are not good farmers, we soon shall be; which circumstance, with a person of your considerate cast, will, I doubt not, sufficiently apologize for our not being at this late day, since our first connexions with your countrymen, so little versed in this most important of all occupations in human life.

I live about six miles from Roscommon town, in a fine open champaign country, the soil for some miles round being mostly of a deep clayey nature, moist in winter, and stiff in summer, and lastingly fertile, that part especially of the barony I live in immediately about me: so that, had the farmer,

* This letter was communicated to the editors by the gentleman to whom it was addressed; we cannot omit this opportunity of thanking him for his kind encouragement. If Mr. Irwin will favour us with some practical remarks on the subject of agriculture, he will oblige us much.

farmer, in ſkill, been equal to the fertility of the ſoil, it might juſtly emulate with any part of Kent, or Middleſex.

The middle price or rent of land in this country, to the farmers, or rather graziers, (for ſuch they moſtly are in that diſtrict, and too much ſo all over the kingdom *) is from ten ſhillings to twelve ſhillings, and of late years to fifteen ſhillings *per* acre; but at this laſt price there is no fortune to be made, till the kingdom either increaſes in its trade, which will eſtabliſh markets equal to Dublin, in different parts of it, (a circumſtance of the utmoſt importance to the farmer) or until the inland navigation is completed; and, to the ſhame of the country, I find there is a ſtop put to it for this year, though a parliamentary work.

Having ſaid thus much of the ſoil, which was neceſſary to premiſe, in order the better to explore its produce, I ſhall now proceed to the cultivation of flax, as practiſed in this part of the country, being as yet the principal article that brings into Ireland moſt of the wealth it poſſeſſes, though it ought, in common with other nations, to benefit equally of every other commodity it is capable of producing. But, alas! ſuch are the unhappy effects of human policy, that being reſtrained in point of general commerce, which alone is the vivifying ſun that makes a country yield to its utmoſt, three parts of us are on this account driven to the hard neceſſity of becoming emigrants; *Nos patriam fugimus, et dulcia linquimus arva.* But to return, the Dublin ſociety, and many others, have treated this ſubject ſo much at large in their eſſays, and juſtly ſo, becauſe of its great importance to

* To the great misfortune of Ireland, moſt of the land is let in large farms to powerful undertakers; it being no unuſual thing there, for one man to hold two thouſand acres of land. The chief part of this, theſe monopolizers lay down in graſs for feeding cattle, by that means depopulating the country, and ſtarving the poor. Were theſe large farms divided, and more land brought into tillage, the face of the country would aſſume a different appearance, and the poor inhabitants, inſtead of being driven by want into foreign countries, would be glad to ſtay at home, and apply themſelves to the different works of huſbandry. O.

to the kingdom, that it will be needleſs for me to ſay much about it, except where particular methods of cultivation and management of it may differ in particular cantoons, ſuch as about my place, from the general methods recommended by public authority, and be of uſe in being communicated.

Of the Cultivation and Management of Flax in the Mahera.

The poorer ſort of people in the diſtrict I live in, are ſo indigent, that they are almoſt in a ſtate of ſlavery. Indeed, within theſe laſt forty years, they have much recovered from their bare and naked condition, owing in a great meaſure to the conſiderable extenſion of the linen manufacture.

Their chief riches conſiſt in their annual crops of flax, corn, and potatoes, in order to pay their rents, which they help off with day-labour: a moſt galling article to them; for, as to cattle, few of them have any, or but a milch-cow or two at moſt, which are appropriated for nouriſhing generally a numerous iſſue. The calves, which induſtry ought to let remain with them to increaſe their funds, or to clothe their families, a rapacious landlord ſeldom wants a pretence of appropriating to himſelf. Theſe people then, from neceſſity, it is evident, muſt be perfectly verſed in the cultivation of flax and potatoes; and they would ſucceed very well as to corn, had they ſurmounted a few old prejudices reſpecting the form or make of their implements, and the methods of uſing them. It is however from ocular knowledge of their proceedings in my work, and their own, that what I now communicate to you is founded.

The ſoil about Oran, being ſtrong, deep, and moiſt, with a clayey loam moſtly at bottom, yields excellent flax. It is here ſcarcely ever produced immediately from the ley. The general practice is as follows: a parcel of ley land in good heart, that is, which has not been plowed for many years, is proclaimed to be ſet to graſs potatoes (otherwiſe ſpaddane, a very miſtaken practice, eſpecially if a deep ſoil, if it be not ſanded, or if a light, if not marled, or limed, or otherwiſe manured): for this land the poor are charged from

three

three pounds to five pounds *per* acre, ſanding not always included; a moſt unconſcionable price!

They generally bargain for two ſucceſſive crops; and it is for their benefit, as alſo for that of the land, to have it ſanded, becauſe it ſtrengthens it the better to ſtand a continuation of tillage, and to come the ſooner to turf, and yield a good coat of graſs, when ſet back into the ley; but the ſky-farmers (thoſe who hold at rack-rents) are moſtly ſo greedy for gain, that it is with reluctance they agree to ſanding, as it abates fourteen ſhillings *per* acre of their price. When land that requires it is not ſanded previous to the kind of tillage, it is doing it great prejudice; but farmers are not always ſollicitous about this matter, eſpecially on ſhort leaſes.

Land properly ſet in this way ought to be ſanded * at leaſt a year before ſetting, that it might have proper time to penetrate into the earth, and impregnate it with its ſalts: but they are ſuch bad farmers about me, that they ſet, ſand, and plant their potatoes almoſt at the ſame time. Even in this bad way the land ſhould be ſet and ſanded (or otherwiſe manured) at leaſt in November, and the potatoes planted the March following at fartheſt; but I have ſeen land not ſanded till March, or April, and not ſowed till towards the end of May, (a palpable blunder;) yet this land has yielded a tolerable crop, owing to its natural great fertility; for the ſand becomes of little uſe, if the land is turned up ſoon after it is freſh laid on. This does much hurt in the country; for ſuch land, after it is let out from a long ſeries of tillage, (ſuppoſe fifteen years) is a long time recovering itſelf, and that which is ſpaddanized out of the ley, and not gravelled at all, unleſs of a moſt ſuperior rich kind, is doubly injured.

The

* We could have wiſhed Mr. Irwin had ſpecified the particular quantity of ſand he lays on an acre, and whether it is found in his land under the firſt bed of ſoil, and at what depth; alſo, the nature of the ſand that agrees beſt with the land, whether it conſiſts of fragments of lime-ſtone, which gives a richneſs and vigour to the ſoil, or of flints, or pebbles, which ſerve only to divide and looſen a ſoil that is too cloſe and compact. N.

The potatoes ſhould be dug towards the end of October, or beginning of November at fartheſt, (froſty weather excepted) to make room for a crop of bere *, or a crop of flax, the ſpring following; if for flax, the land ſhould get a deep plowing before Chriſtmas, to benefit of the winter manure, ſuch as froſt, ſnow, air, &c. and a croſs plowing the beginning of February; and towards the end of March it ought to get another plowing in the track of the firſt; then the ridges to be harrowed down as fine, and as flat, as poſſible, and the ſeed ſown in, and lightly covered with another gentle harrowing; for the ſeed is not apt, from any cauſe that I have obſerved, to be diſturbed in the ground.

In this ſituation it ſhould be left till June, then weeded. Some weed it when four or five inches high; but treading it ſo young hurts it; and this weeding is of no uſe, for it muſt be weeded again before pulling, eſpecially in deep chiltern countries, where weeds get a-head much more than in light gravelly ſoils. In theſe the flax is always ſhorter and finer, and the ſeed in leſs quantity; but the Iriſh ſeed, though it is often impoſed for foreign, is never ſo good: for example, the firſt year's return of foreign ſeed will produce a middling good ſort of flax, whereas the ſecond return will not. To ſow the ſeed even ſhould be moſt carefully attended to: a commonly ſkilful hand will with eaſe caſt it properly, the method being ſo well known. Sixteen pecks of ſeed, at twelve quarts to each peck, is a proper quantity for an acre of good light ſoil. In my deep grounds I have known fourteen pecks to be ſufficient.

The ſeed now much uſed in Ireland is the Plantation, but the better ſort of the Baltick or Riga ſeed I would prefer. The Dutch agrees worſt of all with our climate. The choice of it is eaſily known. The women are ſurpriſingly ſkillful in every thing that regards this plant: one of them will ſhut her eyes, put her hand into ſeveral hogſheads of

* Bere is a kind of barley, little known in ſome parts of England: it is often called winter or ſquare barley, or big, and is the *Hordeum hexaſticum pulchrum*: J. B. It is ſown in autumn, and on well-tilled land yields a large increaſe; it is coarſer than common Engliſh barley. T.

flax ſeed, and fix upon that which is beſt; but they have marks from preſſing it to oil between their fingers, ſo as to obſerve the edges, and from taſte, ſmell, and view, without requiring to make the other common experiments; whence they are ſeldom deceived; not but the merchants play them a thouſand tricks in this article, which is become very lucrative of late years, from the vaſt demands there are for it.

The heavy, pale rediſh, or rather clear brown looking ſeed, being thick and ſhort, and oily in the feel, is the beſt. Sometimes, among ſome parcels of the ſeed, there are certain mixtures, by which predications the women immediately eſtimate the quality of it. The old Iriſh ſeed, of which quantities are ſtill ſown, is the worſt of all; the returns are extremely bad, and the flax but indifferent for uſe.

Two crops ſucceſſively are common in deep rich lands; but as flax is a great drawer, they are not the better for it, as it greatly retards their coming to graſs.

We always ſow flax after potatoes or corn, (bere) and, if proper care be taken in the preparation of the land, find it to anſwer well. How far better it may be immediately out of freſh land manured, I will not take upon me to ſay: ſome writers recommend this method; but it would never anſwer with our poor people. I have ſeldom known flax to be raiſed immediately from manured grounds: mine being rich, deep, and moiſt, and properly wrought to return a firſt crop of ſome other article, yields afterwards admirable flax. Where different ſoils can be had in the ſame diſtrict, 'tis needleſs to obſerve, that the richeſt and ſtrongeſt, with a clayey loam at bottom, is beſt: the nature of this plant requires ſuch, being a great drawer of the nutritive parts of the earth; but, on the other hand, there is a medium to be followed in this, as in moſt other things: land may be made too rich for flax, which will undoubtedly lodge it, that is, occaſion its prematurely lying flat to the ground: this prevents its ripening, conſequently occaſions great waſte of it, total loſs of ſeed, and what is recovered of it manufactures but indifferently, and ſtands the teſt of uſe worſe: however, there is much of this ſort ſpun into yarn by the poor,

poor, and impoſed for good on the eagle-ſighted yarn-buyer, notwithſtanding his great vigilance.

If middling good land, whether in the ley or not, be fallowed early in the ſummer, and gets the proper tilth till the March following, when it is to be ſown, there is no doubt but it will yield an excellent and abundant crop of flax. Land cannot be plowed too often, or made too fine, for this purpoſe. Flax ought to be ſown and pulled in dry weather.

It is ripe in my neighbourhood, generally ſpeaking, not till the beginning or middle of Auguſt, and ſometimes later, when late ſown: the better ſort of huſbandmen think it is not neceſſary to ſow it earlier than Good-Friday: about that time moſt people begin.

The poor people have ſeveral marks by which they know when it is fit for pulling: the degree of brownneſs of the colour is the chief, and is a ſufficient guide to any perſon. The men and women, promiſcuouſly ranged in a row a-breaſt, pull it expeditiouſly enough, eſpecially if they are a little refreſhed with ſome of the good things of this life, and lay it on the ſwarth. If there be danger of rain, they bind it the ſame evening into ſheaves, and *ſtook* it, putting commonly eight ſheaves in every *ſtook*. Here it is ſuffered to remain for ſome days, till it is ſufficiently dry to remove.

The poor, from neceſſity, proceed to manufacture it immediately, by *ripling* of the rows, and *watering* it, *&c.* But my method is as follows. After I let my flax ſufficiently ſeaſon in the field, ſo as to prevent danger of heating, which deſtroys it, I draw it into my haggard, ſtack it, and thatch it well. Thus I let it remain till the next ſowing-time, (March) when I *ripple* it and *water* it, and, if I have leiſure, proceed to *dreſs* it; if not, make it back into a ſtack, and let it lie ſo, without any hazard of danger, as long as convenient: or, (another way) ſoon after pulling, it may be *rippled*, *watered*, and *ſtacked*, ſo as to be ready for dreſſing the ſpring following. But I chuſe the former method, becauſe I thereby preſerve the ſeed, and ſell it, if I take a little care, equal to the foreign, which will go a good way in reimburſing me my expence: 'tis true, the quantity of flax will

be ſomewhat diminiſhed for remaining ſo long unwatered; but then it makes ample amends in meliorating it; for I have obſerved, that the flax thus managed dreſſes and manufactures much better, and when in linen, it wears beſt. But the impatience of our Iriſh ladies, who are the conductors of this branch, from the time the flax is over ground, till made into linen, is ſuch, that they do not reliſh delays of this ſort, though infinitely the beſt method of proceeding.

For watering flax, clear ſtagnated pools or canals, or ponds, are beſt, provided there are no fiſh, as it kills them: ſprings and running waters muſt be avoided. To ſink it under water is proper, and let it lie about three weeks, more or leſs, according to the quality of the flax, and the condition of it at putting in.

About me the poor people ſtill perverſely will water it in bog-holes, becauſe they think the water cannot be too ſoft, and that the banks, being unincumbered with long graſs, facilitate the drying of it.

When it is brought home (as they have no ovens) they fix a large hurdle horizontally by a ditch ſide, about four or five feet from the ground: on this they lay a parcel of flax, and underneath make a large turf fire, and keep conſtantly turning it.

They judge it fit for the *brake*, by rubbing a parcel between their hands, and finding the prickles to detach themſelves eaſily from the flax.

The *braking* is a very laborious part: 'tis pity that about where I live there are no engines contrived for this purpoſe, as it would ſave great expence in labour. This part of the proceſs ought, properly ſpeaking, to fall ſolely to the ſhare of the men; but the women as commonly do it, which I thing very unſeemly, and ſtill more ſo to ſee a man *ſcutching* and *hackling* flax, which is equally as common with us: but the women always *ſcutch* mine, and I find do it beſt, as I order them refreſhment, it being a merry-making time, (though but ſhort) like vintage, or ſheep-ſhearing time.

The conſtruction of the *brakers* I need not explain; they are ſimple engines, and known to every body. The broad

ſcutch

ſcutch is the beſt, as it hurts the flax leſs; it ought to be made of well-ſeaſoned oak, to be light, that the women, who are dexterous at it, may manage it the more eaſily.

A great deal depends on the ſkill of the *hackler*, who ought to be very expert and knowing in dividing it properly, and in arranging the ſorts according to their different fineneſs. I have had ſome *hacklers* manage this matter ſo well, that out of the very tow they produced I had good linen for common uſe*. I had other *hacklers*, who, inſtead of preparing my flax to ſpin to eight and ten dozen of yarn to the pound, of which it was capable, they prepared it ſo badly as to produce me only from four to ſix dozen yarn.

To the ſpinners we keep in our houſes we generally give from thirty-five to forty ſhillings a year: theſe ſpin from four to eight dozen yarn; but if they ſpin finer, they are entitled to get a gratuity in addition, or higher wages. There are girls in plenty in the north of Ireland, (where the manufacture moſt flouriſhes) who ſpin ſurpriſingly fine, and many of them with both hands at once, at wheels adapted for the purpoſe; but ſcarcely any of theſe ever come into the parts where I live.

As to the reſt, from the time the yarn is ſent to the weaver till it is brought home from the bleach fit for uſe, it forms a particular proceſs in itſelf, and ſhall be communicated to you when more ample leiſure will permit. However, before I diſmiſs this ſubject, it may not be improper to make a few detached obſervations to illuſtrate ſtill more what I have already ſaid.

There are various ways to know good ſeed, which is one of our moſt eſſential objects. Firſt, to diſcover its thickneſs, by taking ſome grains, and ſqueezing them between the fingers until the white edges of the inſide pulp, or grain, are

* In Ireland almoſt every family in the country manufactures all the houſhold linen, ſuch as table linen, ſheeting, *&c. &c.* It is therefore no wonder the ladies ſhould ſo well underſtand the proceſs of managing the flax from the time it is pulled till it is fit to be made up into ſhirts, ſhifts, *&c.* We wiſh Mr. I. had mentioned what was the quality of the linen that was made from tow, and to what uſes it was applied. A.

are forced to appear. To eſtimate its goodneſs by its weight may be eaſily done by throwing a handful into water, and if good, it will ſink quickly. To prove if it be oily, throw a handful on the fire, and if, as ſoon as it touches the coals, it burns up and crackles, its goodneſs may be depended on. But no ſeed of Iriſh growth, as I ſaid before, will thrive well a ſecond year in any of the ſoil in my neighbourhood; nor will the ſame ſoil anſwer for more than two ſucceſſive ſeaſons, without the intermediate occupation of other crops procured from manures.

As the culture of flax lays down land very ſmoothly, and well, if you chuſe to have your land let out, you may ſow graſs ſeeds with a light roller, or buſk, in ſome little time after your flax is in the ground: they will not hurt it; and by this means you will have a full coat of graſs the ſame ſeaſon, which otherwiſe perhaps would not be the caſe for two or three ſeaſons, flax being a great impoveriſher.

When the flax is a clear yellow, or a clear brown, ſomething reſembling a lemon colour, and begins to drop its leaves, it ſhould be pulled; but never when it is green, though often done, which is a very deſtructive method, for in this caſe it loſes conſiderably in quantity and quality, both with reſpect to flax and ſeed. Thoſe who imagine pulling it green will make it yield the finer linen are miſtaken: they need only conſult the method of the Flemmings, who ſuffer it to remain the longer in ground, the finer they want it to prove for their laces, cambricks, *&c.* Care however ſhould be taken not to let it remain too long in ground, as this makes it work badly, yield bad yarn, and not bleach ſo well.

I have kept my flax in ſtack in my haggard ſome two or three ſeaſons, and never found it was damaged by vermin, though I know there are preventatives laid down, by ſome writers, for this purpoſe.

If the ſeaſon be moiſt, there is no ſtacking it with ſafety till it remains unheaped a conſiderable time in the barn, as the leaſt heating is certain deſtruction to it.

No land can be too good for flax, if the ſeed be duly proportioned to it. If the crop fails in a rich and ſtrong ſoil,

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it has had too much ſeed; whereas it is not to be ſo thick, but that every ſtem might have the benefit of the ſun and the air to fortify it. I ſhall ſay nothing further of the different kinds of ſoil proper for flax, having drawn my experience from that moſtly in my neighbourhood; the qualities of which I have already noticed. In ſhort, ſuch as theſe hints are, accept them; and if through your means they ſhould in any ſort become uſeful to the public, I ſhall conſider myſelf ſufficiently rewarded.

I am, SIR,
With great eſteem,
Your very obedient ſervant,

June 24, 1763. JOHN IRWIN.

P. S. Flax is ſubject to be blaſted, or withered, by intenſe north winds, or N. E winds, which never fail blowing in Ireland at different times in the ſummer ſeaſon. I have obſerved the odd effects of theſe blaſts on fields of my own flax: they ſometimes darted through in an irregular direction (like a thunder-bolt) from N. to S. or from N. E. to S. W. blaſting ſome yards wide, but not equally ſo, which was ſoon perceived by the different colour (foxy) of the blaſted part. At other times the flax appeared blaſted in pretty much a ſtraight line from end to end, and nearly of the ſame width. The flax thus burned up (as I may ſay) by theſe northern winds, is good for nothing, and the prevention of it is impoſſible.

This ſame cauſe, I have obſerved, is alſo moſt deſtructive of orchards: it has been of mine, though exceeding well ſheltered. I burned ſome litter and haulm the windward ſide, while the blaſt laſted (about the end of May); but can't take upon me to ſay my fruit-trees benefited much by this experiment, recommended by ſome writers on huſbandry.

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NUMBER III.

A Letter to Mr. R. Davis, *on Trees and Shrubs which will thrive near the Sea.*

SIR,

AS my habitation is in the eaſtern part of this kingdom, and within a cable's length of the main ocean, I have cultivated ſuch trees only as I have found, from their contiguity to the ſea, able to reſiſt not only the violence of all winds, and ſalt ſpray, but even the brackiſhneſs of the ſoil. The town of Harwich, for inſtance, is almoſt ſurrounded by the ſea, and the pump-water in it is too ſalt for common uſes; and yet in no part of England do mulberry-trees * bear more or better fruit, nor produce a healthier leaf. I do not recollect to have ever ſeen a mulberry-tree injured by the eaſt winds that grew near the ſea.

Roſes alſo are fond of a brackiſh ſoil, and will grow and flouriſh even to the water's edge: but what has ſurpriſed and baffled me moſt, is the frequent failure of Scotch firs, (a tree ſo remarkable for its hardineſs). Theſe trees ſeldom ſucceeded with me; and I at firſt conſidered their failure to ariſe from the plant, the ſoil, or the ſea air; but I find it quite

* Roſemary will thrive very well near the ſea, and grow to a great height. Fennel alſo proſpers ſurpriſingly very near ſalt-water. In the iſland of Thanet, fennel forms, near the ſea, hedges of near a mile in length, growing wild there. The roſemary plant forms a beautiful hedge when properly kept in order; and even fennel is not to be rejected in gardens, ſo ſituated as that few plants will proſper in them. Several ſpecies of the *limonium* (and theſe are naturalized to the ſea) will grow in our climate; ſome may be propagated by the root, others by the ſeed; their culture is not very difficult; they love in general an eaſtern aſpect, and a loamy ſoil; they are often admitted into gardens for the ſake of variety, therefore ſhould by no means be rejected in a garden ſituated near the ſea. We ſhall only mention one more at preſent, which will proſper well only near the ſea, and makes a pretty figure in a garden: it is the *eryngium foliis radicalibus ovalibus planis crenatis, capitulis pedunculatis*, Hort. Cliff. This ſpecies of eryngo is very eaſily cultivated from the ſeed, requiring but little care: it flowers in July. H.

quite otherwiſe, and that their death is owing to neither, but to a ſmall *animalcula* * that neſtles in and about the buds; for by deſtroying theſe *animalculæ*, a tree that was half dead has, in a ſhort time after, recovered its full vigour.

By theſe *animalculæ* every planter of firs will loſe a great many, if they are not attended to. The firs in lord Holland's plantation, near the Acton road, are many of them dead: I examined three or four, and found they had been deſtroyed as above mentioned.

As I have but very few fir-trees, they have been cleared from theſe little deſtroyers by hand: but I imagine brimſtone burnt near each tree, in the beginning of April, would do the buſineſs more effectually and expeditiouſly in large plantations. Though I ſay the beginning of April, it is not becauſe I am certain it is at that time of the year the *animalculæ* is depoſited, for of this I am quite ignorant; it may therefore be neceſſary to repeat the brimſtone till the particular time the depoſit is made, is aſcertained by ſome nicer obſervations than I have hitherto had leiſure to make.

I am,

Felixtow Cottage, SIR,

June 22, 1763. Yours, *&c.*

To Mr. Robt. Davis, *Bookſeller*,
in Piccadilly, *for the* Muſeum
Ruſticum.

NUMBER IV.

A Letter to one of the Editors, containing Obſervations on the new Method of mowing Corn, invented by Monſ. de l'Iſle.

SIR,

I Received your favour, in which you recommend me to try to mow my wheat after the manner invented by M. de l'Iſle: it came however to my hands too late for me

* We could wiſh this gentleman had deſcribed the nature of the *animalcula* he mentions to infeſt fir-trees; could its changes have been obſerved, the gardeners would have been better enabled

to

to make the experiment, as my wheat was almoſt all down at the time. You require my opinion on the ſubject: this I can give you, though not with ſo much pleaſure to myſelf as I could if I had made the trial. In reading the deſcription of the manner in which this operation is performed, I find that the corn is cut very near the ground; that the work is quicker performed, and with fewer hands.

It is certainly of advantage to cut the corn as cloſe to the ground as poſſible, as by that means we encreaſe our quantity of manure *: ſome may perhaps ſay, that if it was neceſſary, it might as well be done by the ſickle; but this I deny, as no labourers could ſupport the toil of reaping, were they obliged to ſtoop ſo low. You may already perceive I prefer mowing the wheat to reaping it, if it can be brought into practice. Some farmers are fond of cutting their wheat as ſhort as poſſible, alledging that it takes up leſs room in the barn; but this is very bad management, unleſs it is near great towns where they are in no danger of wanting a ſufficient quantity of manure.

My greateſt doubt ariſes from the difficulty of bringing this method into practice, as it differs ſo widely from the manner in which they mow barley and oats. This difficulty, however, may, I am apt to think, be got over; for it is no unuſual

to guard againſt its ravages. We recommend it to the curious, to try whether fumigating the trees with brimſtone will deſtroy this inſect, and if it proves effectual, to obſerve when is the beſt time of doing it. E.

* When wheat is cut cloſe to the ground, the quantity of ſtraw, houſed with the ear, muſt of courſe be greatly encreaſed. Wheat ſtraw is ſeldom given to cattle as fodder; therefore, as ſoon as the wheat is threſhed, the ſtraw is generally, in many parts of England, laid thick about the farm-yard; and when it is thoroughly wet, and begins to rot, it is ſhovelled up in a heap, and carried to the dunghill or muck-heap, other parcels of freſh ſtraw being laid in the yard in its ſtead: where this is the practice, it may certainly with truth be ſaid, The more ſtraw, the more dung. It is true, that in the iſle of Thanet, and ſome parts of Kent, they leave their ſtubbles very long, as the ſheaves are by that means ſhorter, and take up leſs room in the barn: but their reaſon for being thus negligent of their ſtraw is, becauſe they have a much better manure near at hand; that is, ſea-waure, of which they lay great quantities on their land. R.

uſual thing in my neighbourhood to mow the wheat ſtubbles after harveſt, to burn in malt-kilns; and they think, not without reaſon, that this does rather good than hurt to the land; for the dry ſtubble, not being apt to ferment, is a great while before it rots in the land; it keeps the land hollow, grows mouldy, and, ſome think, often occaſions the following crop to be ſmutty *.

This method of mowing ſtubble †, which is every year practiſed, almoſt convinces me, that our workmen might be brought to prefer mowing wheat to reaping it: the work is, in fact, leſs laborious, and leſs trying to the health and conſtitution.

M. de l'Iſle's method of mowing his wheat is, I find, as follows: the ſcythe he uſes is at leaſt ſix inches ſhorter in the blade than the common ſcythe, and inſtead of a cradle has two twigs of ozier put ſemicircular-wiſe into holes made in the handle of the ſcythe, near the blade, in ſuch a manner, that one ſemicircle interſects the other: this method is frequently practiſed by the men who mow our meadows, as they think a cradle unneceſſary and cumberſome, unleſs the ſcythe is to carry over a large and very heavy ſwarth.

In mowing barley, or oats, the corn is always on the right hand of the workman: but by M. de l'Iſle's method of mow-

* Another great diſadvantage proceeding from the unrotted ſtraw being mixed with the ſoil is, that when wheat happens to be ſown on ſuch land, the ſtiff ſtubble or ſtraw keeps the land hollow, and prevents the earth from touching the ſeed, which is thereby expoſed to the ſeverity of the winter froſts, and ſeldom produces a plant: it is on this account that farmers, who in the common method of huſbandry ſow a large quantity of ſeed on their land, in the ſpring ſee the wheat plants very thin and ſcattered: they often falſely attribute it either to the badneſs of their ſeed wheat, or to the ravages of birds and inſects; whereas the true cauſe ſhould be ſought for in their own ſlovenly huſbandry. In ſome counties in England, and in moſt parts of Ireland, they reap and bind all their corn, barley and oats; by which means the land is never free from unrotted ſtraw or ſtubble. N.

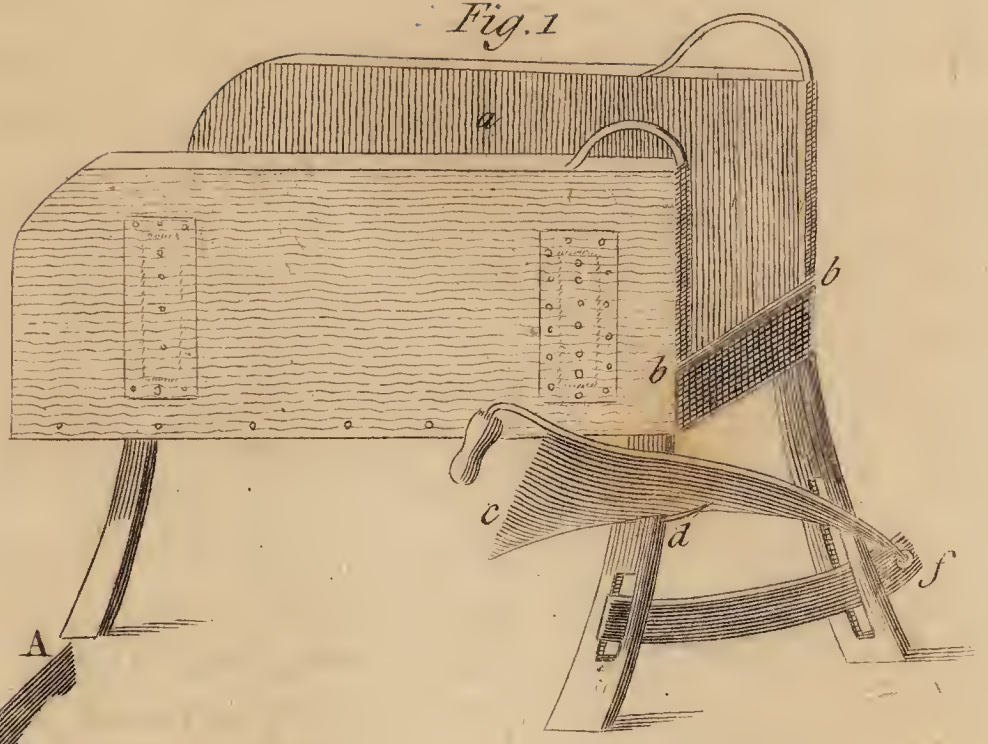
† The Kentiſh farmers alſo frequently mow their ſtubbles for the ſame purpoſe of drying malt; and this is the more neceſſary in that county, as they frequently leave their ſtubbles very long, having a cuſtom of cutting their ſheaves as ſhort as poſſible to ſave barn-room. R.

ing wheat the corn is at his left hand: he mows it inward, bearing the corn he cuts on his ſcythe, till it comes to that which is ſtanding, againſt which it gently leans. After every mower follows a gatherer, which may be a lad of twelve or fourteen years of age, or a woman. The gatherer keeps within five or ſix feet of the mower, and being provided either with a hook or a ſtick about two feet long, gathers up the corn, makes it into a gavel, and lays it gently on the ground: this muſt be done with ſpirit, as another mower immediately follows; for to every mower there is a particular gatherer.

To do this work properly, the mower ſhould form but one track with his feet, advancing in a poſture nearly as if he was going to fence, one foot chaſing the other. In this manner the ſtanding corn is mowed; but the workman muſt take care to have the wind at his left, as it bears the corn towards the ſcythe, and cauſes it to be cut nearer the ground. If the wind is behind the mower, it is no great inconvenience: it only occaſions the ſcattering of a few ears; and the cut corn, which ſhould lean againſt the ſtanding corn, is ſometimes thrown down; which makes the work go on ſlower, and encreaſes the gleanings. The wind in front is very bad; the corn cannot be cut cloſe, and there is a great loſs: but the wind on the right hand is worſt of all; the ſtubble is left long, and ſuch a quantity of gleanings, that one would imagine no crop had been taken off. When wheat is bent, the workman takes the corn as it preſents itſelf to him, which has the ſame effect as if the wind was at his left ſide. When wheat is laid, it is more troubleſome to the gatherer, becauſe the cut corn is apt to be mixed with that which is ſtanding; but a good mower takes the advantage of the wind, and cuts it againſt the way it is laid. No particular directions can be given for corn that is lodged and tangled, unleſs it is to take it as it is inclined, as if the wind was in the back of the mower.

Thus far my author. I am very ſenſible, that wheat may with advantage be mowed; but I ſee no very particular reaſon for preferring M. de l'Iſle's method. This mowing the wheat towards the ſtanding corn ſeems intended to prevent the

Fig. 1



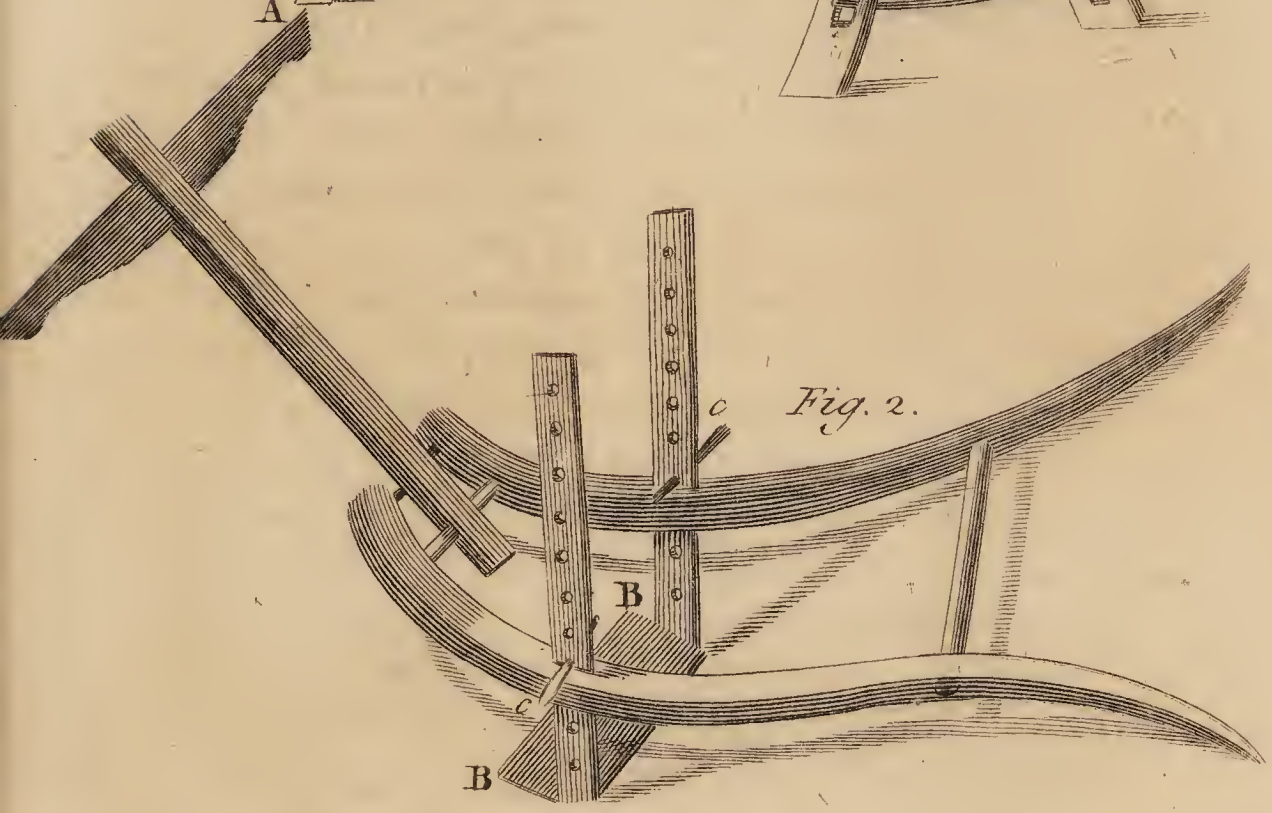


Fig. 2.

Fig. 3.

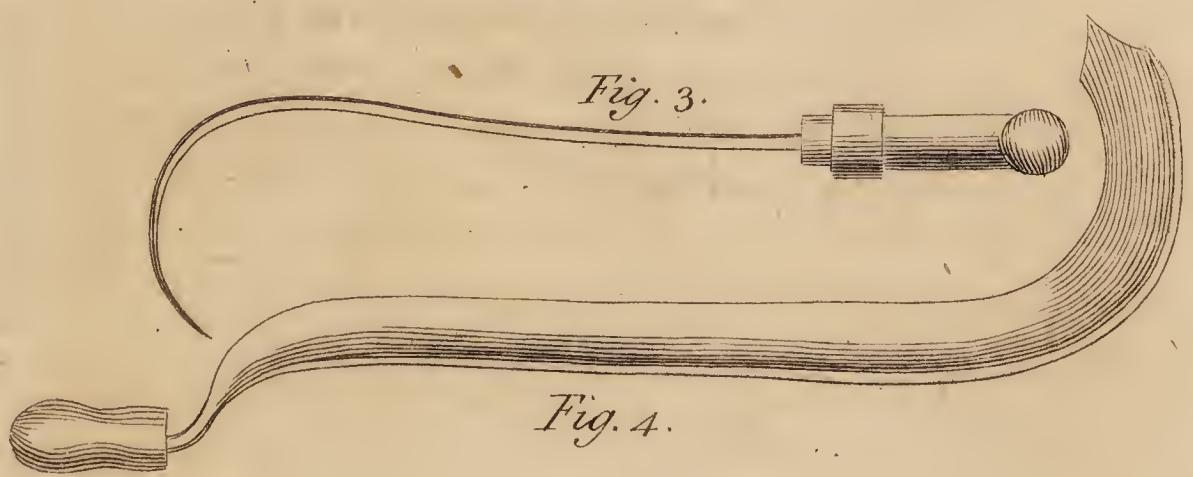


Fig. 4.

the ears receiving the ſhock of falling to the ground, eſpecially as the ſtubble will not be left long enough to break the fall: but I ſhould imagine ſome method might be found, by means of a well-contrived cradle, to make the ſcythe lay the cut corn gently down without a ſhock on the ground: if this could be done, the work of the gatherer might be ſaved, which would greatly leſſen the expence of harveſt, and induce people much ſooner to come into mowing their wheat.

Every innovation in huſbandry ſhould be as ſimple as poſſible; for though the farmer may be intelligent, four parts in five of his workmen will always be ſtupid, ignorant, and obſtinate: yet are theſe neceſſary inſtruments to carry into execution every work of huſbandry. I have myſelf for ſome years thought, that wheat might better be mowed than reaped; but what hindered me from making the experiment, was my being conſcious that it would be neceſſary, as well to find out a method of mowing wheat that grows on high ridges, as that which grows on ſtitches and flat lands: this was the difficulty that occurred; this prevented my carrying my thought into execution; and this I even now think is not eaſily to be got over.

If you hear of any body that has tried M. de l'Iſle's method of mowing wheat this harveſt, I ſhould be glad to be informed what ſucceſs they have had; it may perhaps be brought to bear with very little improvement. I much approve of his method of laying the gavels, to prevent the corn from growing in the ears: he lays them in triangles, ſo that the foot of one gavel forms a bolſter for the head of another *; this keeps the ears from the ground, and prevents their imbibing its moiſture.

M. de l'Iſle imagines one advantage of his method to conſiſt in a great increaſe of fodder for the cattle, by the number

* The manner of doing it is thus. After the firſt gavel is laid on the ground, the ears of the ſecond are laid on the foot-ſtalks or ſtraw of it: the workman then takes a third gavel, the ears of which he lays on the foot of the ſecond, and gently raiſing the ears of the firſt gavel, he puts under them the foot of the third: this is ſoon done, and is an excellent method, worthy of imitation: if it was brought into general practice, wheat would not be ſo apt to ſprout as it is.

ber of weeds that are cut down with the corn when it is mowed: theſe weeds will be of little uſe to us in England, as it is but very ſeldom that we fodder our cattle with wheat ſtraw. So far uſeful the cutting theſe weeds at harveſt certainly may be, *viz.* that ſuch of them as have not ſeeded will be prevented doing it for that ſeaſon; but the misfortune is, that moſt weeds perfect and ſhed their ſeeds before wheat is ripe; ſo that, after all, the ſureſt method of deſtroying weeds is to keep the ground clean when it is cropped, and to hinder them by frequent plowings from ſeeding when it lies in fallow.

If any thing new occurs in town on the ſubject of huſbandry, I ſhould be glad to be informed by you, as it is now become my favourite ſtudy; and ſince I have retired entirely into the country, ſpeculations and experiments occupy my whole time. Yours,

Eſſex, Sept. 1ſt, 1763. S. K.

NUMBER V.

A Letter to one of the Editors, being a Deſcription of the Manner in which Canary Seed is raiſed in the Neighbourhood of Margate *in* Kent.

SIR,

I Received, a few days ago, the propoſal for the *Muſeum Ruſticum et Commerciale*, and cannot but expreſs, in the warmeſt terms, my approbation of your ſcheme: I ſincerely wiſh it may meet with all the ſucceſs it merits, and that you, and the reſt of the gentlemen concerned, may hereafter reflect with pleaſure on the good effects of your public-ſpirited undertaking. We wanted much a repoſitory for detached pieces on the ſubject of huſbandry: it will often induce me to ſend you my thoughts, which you know have been long attached to the contemplation of Nature and her produce. I propoſe ſpending the ſummer at this place, which is ſituated in an iſland that will furniſh many materials for future letters,

as

as the methods of huſbandry practiſed here are, in many reſpects, peculiar to the place.

Determined that ſomething of my writing ſhould, if poſſible, appear in your Firſt Number, I am now ſat down to give you a few ſcattered obſervations on the culture of canary ſeed: theſe I have collected from ſome occaſional converſations with the farmers in the neighbourhood; they are a good ſenſible ſet of men, and know more of the world than farmers * in general do.

I find they generally chuſe to ſow it on freſh land, that is, ſuch as has only borne graſs. After plowing up the lay, and bringing the land into tolerable rough tilth, they ſow it with peas; theſe are kept clean hoed as uſual, and yield a good crop. The next year the land is well plowed, and planted with horſe-beans, which thrive well in this iſland. Theſe two crops effectually kill the greenſwerd, or graſs; take off the rankneſs of the ſoil; and the frequent hoeings, which are neceſſary to keep the weeds under, bring the land into fine tilth. After the beans are off, the land gets a thorough plowing, and is then left till ſpring: about the beginning of March, if the weather is fine, and the ſeaſon is dry, the land gets its laſt plowing; immediately after which the canary ſeed is ſown.

In this neighbourhood the farmers uſed formerly to ſow canary ſeed with the broad caſt, ſpreading it all over the land; but when this was the practice, they found it very difficult to hoe and keep clean from weeds: at preſent they ſow it in furrows made acroſs the land, conſtantly taking care to make the ridges betwixt the furrows as ſharp as poſſible: by this means the ſeed, which is ſown by hand, ſlips from the ſides and tops of the ridges into the furrows, and the plants

* This may eaſily be accounted for, as there is ſuch a conſtant intercourſe betwixt the iſland of Thanet and the metropolis; and perhaps it may be partly owing to the genteel company which reſorts to Margate, that the farmers in that neighbourhood are more civiliſed than their brethren in many parts of England. There are not probably any ſet of men ſo attached to old, though ſenſeleſs cuſtoms, as the farmers; and they ſeem to be nearly of the ſame diſpoſition in other parts of Europe, particularly in France, of which Monſieur du Hamel conſtantly and loudly complains. A.

plants come up in regular rows *. The plants muſt be kept very clear of weeds by means of the hoe, weeding-hook, &c. and if it is a wet ſummer, it muſt be hoed ſeveral times: but of this the intelligent farmer is the beſt judge.

Three pecks of ſeed are in general enough to ſow an acre, ſometimes more, and often leſs. The canary harveſt ſeldom comes on till the wheat harveſt is entirely over, and the corn houſed: but I muſt obſerve, that the wheat harveſt is generally very early in this iſland. It is reaped with a hook; and as faſt as it is cut, the reapers lay it on the land in *wads*, as they call them, or parcels about the quantity of half a ſheaf of wheat unbound: in this manner, if the weather is favourable, it is left near a fortnight, at the end of which time the wads muſt be turned, that the other ſide may be dried. If the weather is very wet, they muſt be turned oftener, to prevent the ſeed from ſprouting.

The

* This is a faint imitation of the new method of huſbandry invented by Mr. Tull; the crop of canary coming up in rows with intervals betwixt the rows. It were to be wiſhed, that the new huſbandry had a fair trial in England; eſpecially as it may, in ſome degree, be executed with the inſtruments commonly uſed. Suppoſe that, in ſowing a field, the ſower, after laying his ſeed thinly in one furrow, ſhould lay none in the next which the plow turned; let him then ſow another furrow; by this means there will be two rows of corn in three furrows: afterwards, to form the interval, let five or ſeven furrows be turned, according to the richneſs of the land, without laying any ſeed in them; and in the ſame manner the ſower may go through the whole field. When the wheat comes up, if it is too thick in the rows, it may, at a trifling expence, be thinned with a ſmall hand-hoe, leaving the plants about three or four inches diſtance from each other. Hitherto all is done with the common plow; and to ſtir the intervals, and keep them clear from weeds, the Rotheram plow may be uſed, taking away the earth-board; and in the laſt ſtirring, when the plants are to be earthed up, the earth-board may be put on again. This method of huſbandry will not, it is true, be perfect in its kind; yet the farmer may derive many advantages from it: by ſowing the intervals with wheat the next year, he will have two ſucceſſive crops of that valuable grain, each nearly as conſiderable as in the common way; and he may afterwards take off a full crop of barley; then fallowing it, or ſowing it with turneps, which is perhaps better, he may, with the help of a moderate quantity of manure, renew his crops. Horſe-beans or peas may be ſown inſtead of turneps, if the land is ſtrong. E.

The price of reaping canary, in this part of the world, is from ſix to eleven ſhillings per acre, and the price of threſhing and dreſſing it, is five or ſix ſhillings a quarter. According to the goodneſs of the land, and the tillage that has been beſtowed on it, the farmers here expect their return to be from twenty-five to fifty buſhels per acre, but the common crop is from thirty to thirty-four. Obſerve however, that the farmers never pay ſo much as ten or eleven ſhillings an acre for reaping this crop, unleſs the canary be very much lodged and tangled, which it often is, owing to the land on which it grows being freſh, rich, and rank, and to the high winds to which this iſland is ſubject.

They ſow ſucceſſive crops of it on the ſame land for eight or ten years; and ſowing canary would be a very good improvement in lands which lie convenient for water-carriage to the London markets, was it not a crop the farmer ought by no means to depend on, not only becauſe the return, or the quantity it yields, varies greatly, but alſo on account of the fluctuation in the price of this ſeed in the London markets, where the greateſt, and almoſt only demand is. Adieu. I purpoſe writing ſpeedily to you again on the ſubject of huſbandry.

Yours, *&c.*

Margate, Aug. 25th, 1763. RUSTICUS.

NUMBER VI*.

A Letter from the Reverend Mr. Jackſon, *to* R. N. *Eſq; on the curing of rank coarſe Meadows, and cultivating Cabbages as Food for Cattle,* &c.

SIR,

EVER happy in obeying your commands, I ſhall forthwith inform you what methods I purſued to make the meadow at the back of my houſe ſo good as it is. You well

* The editors are much obliged to Mr. N—— for communicating this letter to them, as well as to Mr. Jackſon, for conſenting to its being publiſhed with his name annexed. Any future communications from Mr. Jackſon, will meet with a very favourable reception.

well remember that, when you thought me worthy of ſupplying the place of the late incumbent of this rectory, this meadow was wet, poachy, over-run with ruſhes and flags, and the little graſs that grew on it was coarſe and rank.

I at firſt ignorantly enough imagined it was owing to ſome deficiency in the ſoil; yet being ſomewhat doubtful, in the middle of the ſummer, when the ſeaſon was dry, I cauſed a deep trench to be dug in the meadow, and on examining the ſoil, found the labourers threw out a rich black earth, and that it had a ſufficient depth.

This encouraged me to proceed. I immediately had deep drains cut all over the land at proper diſtances, to carry off the ſuperfluous water: my next work was, to cauſe all the ruſhes and flags to be mowed as cloſe as poſſible to the ground, and the whole meadow covered with coal-aſhes.

This had not the deſired effect; for the ſucceeding ſpring, the meadow was again almoſt covered with flags and ruſhes. I was now determined to plow it, which I did the latter end of the ſummer. Still thinking that the earth was not ſtirred to a ſufficient depth, I hired ſeveral ſtout labourers, and agreed with them to dig it for me, two ſpit deep at leaſt, for three-pence a rod: they did me juſtice in their work; for when it was finiſhed, the whole had the appearance of a clean well-kept garden. This digging was performed early in the ſpring, after the froſts were gone off.

Being unwilling to let land, on which I had laid out ſo much money, lie idle, I cauſed the whole of it to be planted with the largeſt kind of cabbages *. I allowed each of the plants a ſpace of four feet to extend its roots.

At firſt the plants ſeemed ſcattered, and at a great diſtance from each other; but they ſoon began to thrive apace. I took great care that the intervals were kept quite clear of weeds by frequent hoeing; and twice in the ſummer I cauſed them to be ſtirred with the ſpade: this had

* Carrots may alſo with great advantage be cultivated in the fields, and are extraordinary good food for horſes, cows, oxen, ſheep, hogs, or poultry, which thrive on them amazingly. A.

a ſurpriſing effect, and the plants grew to a wonderful ſize and weight, the land ſeeming entirely covered by them.

When my crop of cabbages was come to perfection, I cauſed ſome of them to be boiled for my family uſe, and with great ſatisfaction found they were much ſweeter than any I ever had from my kitchen-garden: this I attributed, and perhaps not without reaſon, to the land not being dunged.

Being at a loſs what to do with my crop, which was not ſaleable in my neighbourhood, I came to a reſolution of giving them to my cows, which fed on them plentifully, and greatly encreaſed in the quantity of milk they gave; but the milk had a diſagreeable taſte, as well as the butter which was made from the cream of it; but for this I ſoon found a remedy by uſing Hale's method of ventilating it.

I afterwards, with ſome of theſe ſame cabbages, brought four large hogs ſo forward in fleſh, that ſix buſhels of barley meal made them all completely fat and fit for the pickling-tub; and they turned out moſt excellent pork, without any bye-taſte: I muſt however notice, that I was at firſt obliged to cauſe the cabbages to be boiled for the hogs, to induce them to eat hearty; but they were ſoon by degrees brought to reliſh them raw.

My poultry were extremely fond, both of boiled and raw cabbages; and my draught-horſes, when it was cut ſmall, reliſhed it much when mixed with oats, and ſeemed rather to thrive from the change of food; they alſo eat much leſs hay than uſual.

I was not at all diſpleaſed with my experiment, and have every year ſince cauſed a piece of meadow to be dug and planted with cabbages for the above purpoſe.

In the ſpring I cauſed all the ſtalks to be pulled up, and the land ſtrewed over with the ſweepings of my loft, and the bottoms of my hay-ſtacks, adding ſome ſeed of the ſweet, white-flowered, or honey-ſuckle, trefoil *: I then ordered

* Mr. Miller, with very good reaſon, greatly recommends the honey-ſuckle trefoil to our notice, as worthy of being particularly cultivated: he obſerves, that it is common in moſt of our paſtures;

my workmen to fill up the drains with witch-elm faggots: over them were laid ſome large ſtones, and the whole covered with looſe earth, ſown with hay ſeed like the reſt of the meadow: by this means I loſt no ground, and the whole field took the appearance it had when you ſaw it, and bears as good crops of as ſweet hay as any in the pariſh.

It is now five years ſince I laid it down again in graſs, and there has not in that time been the leaſt appearance of either ruſh or flag. By the experiment I have related to you I gained two pieces of knowledge; I firſt diſcovered new uſes for cabbages, and laſtly hit on a method of meliorating and curing a rank meadow.

As to uſing cabbages for feeding cattle, *&c.* it may not perhaps be looked upon as any very valuable acquiſition in huſbandry, though I have found advantage from it; yet the curing rank meadows is certainly worthy our attention, as there are in England many thouſand acres of coarſe meadow land let under five ſhillings *per annum* each, which, prepared in the manner I have deſcribed, would be worth at leaſt forty ſhillings an acre, perhaps twice as much, if near a great town or city. Happy in every opportunity of obeying your commands, I am, SIR,

Your moſt obedient,

And obliged humble ſervant,

L. JACKSON.

N——, Aug. 4, 1763.

paſtures; but no body has thought it worth while to ſave its ſeed. In the Netherlands the peaſants have induſtriouſly gathered it, and now ſow a great number of acres annually, ſolely with a view of ſupplying the Engliſh markets with it. This is no inconſiderable object; for, when there is a good crop, and ſaved from the ſpring growth, the ſeed produced from one acre will be worth twelve pounds. It is a great pity our Engliſh farmers are not more curious in the choice of their graſſes; for ſome ſorts are certainly much to be preferred to others, and it is no more trouble to cultivate the beſt than the worſt ſorts. N.

NUMBER VII.

For the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

I Herewith ſend you the copy of a letter I wrote ſome years ago to a worthy friend of mine, ſince dead: he followed the directions contained in it, and thereby greatly improved his land. You may perhaps think it deſerving of a place in your collection; if you do, you have my conſent to inſert it; but I would only have the initial letters of my name printed: my friends know I love huſbandry; but I ſhould not chuſe to lay myſelf open to the viſits of curious impertinents.

To judge by your propoſals, I ſhould be naturally apt to conclude that your collection will be uſeful: it will at leaſt tempt many to give their thoughts to the world, who would otherwiſe ſcarcely commence writers: perchance I may now and then trouble you; but at preſent I have only leiſure to aſſure you that I am,

Pall-Mall, Aug. 25, 1763.
To the Care of Mr. Newbery,
Bookſeller, in St. Paul's
Church-Yard, London.

GENTLEMEN,
Your humble ſervant,
E. N.

A Letter from E—— N———, *Eſq; to Dr.* **** *in* Kent, *on the Uſe of Sea-Waure* *.

SIR,

YOU aſk my advice relative to a piece of ground, or ſmall farm, you now occupy yourſelf on the ſea coaſt: you obſerve in your letter, that the ſoil is gravelly, with a ſmall

* Sea-waure or ſea-wracks, or ſea-weeds, are reckoned a very good manure where they are to be had at a reaſonable rate. They muſt in their nature be very ſtrongly impregnated with ſalts, which they impart by degrees to the land they are laid on, and thereby greatly fertilize it. If land is properly dreſſed with ſea-wracks, the virtue of the manure will not be exhauſted at the

ſmall admixture of rediſh loam; that the under ſtratum is clay; that it has by the laſt tenant been plowed out of heart, and now yields only a poor ſtarved graſs.

You would wiſh, I ſuppoſe, to get this land into good order as ſoon as you can; but in theſe caſes no good is got by being in a hurry. I take the natural ſurface to have been originally a ſhallow hungry gravel, with very little mixture: when it came to be plowed, ſome of the clay was accidentally brought up by the ſhare, and blended with the gravel: this, after having been in a few years, rendered mellow and tractable by the influence of the air and ſun, is what now bears the appearance of loam, the ſandy part of the gravel having made it leſs compact, and given it a looſer texture; and, in fact, whatever virtue there is in the ſoil proceeds from this mixture.

As we now ſeem to have found out in what manner this land came to be worth any thing, it naturally points out to us a method of improving it, ſo as to make it of real value.

Nature is our beſt guide, and experience will at any time teach us what we may ſafely do.

Experience has already convinced me in ſeveral inſtances, that the under ſtratum of earth may be always ſafely, and ſometimes advantageouſly turned to the ſurface *.

Having premiſed thus much, my advice is, that you ſhould immediately ſet about procuring as much ſea-waure, or weed, as you conveniently can; not that which is left by the in-

flowing

the end of ſeven or eight years: this is a ſingular advantage, as the benefit of common dung ſcarcely extends to the end of two years. A.

* There is not the leaſt doubt but that the under ſtratum of earth may almoſt always with advantage be turned up to the ſurface, eſpecially where the upper bed is of a nature different from it; as for inſtance, if a thin bed of ſand covers a cloſe, compact, and ſeemingly barren clay. If the farmer is timid, and takes care not to cut with his plow into the clay, his land will ſcarcely bear any thing; but let him plow deep, and let the clay lie ſome time to mellow by the influence of the froſts, air, rain, &c. he will in a few years find his ſoil greatly improved; and the more it is mixed by frequent plowings, the nearer will it approach to the nature of a good loam. O.

flowing of the ſea, but what is gathered at low-water from the rocks, &c. for this laſt is of much ſuperior virtue and duration.

Whilſt this work is doing, take care to lay in a ſufficient quantity of lime and raw chalk, and let your men get ready a large heap of earth: loam would ſuit beſt, and if inclining to clay, it will not be the worſe, as the ſoil to be mended is light and gravelly. Your next care muſt be to form your compoſt-heap, which is to be done in the following manner.

Firſt, let your workmen ſpread a thick layer of the earth they have got together, over that a bed of ſea-waure, then chalk *, and laſtly the lime unſlaked, being careful however to cover the whole with a thick layer of earth: it is neceſſary to remark, that the whole depth of all the layers or beds taken together, or of the whole heap, ſhould not exceed ſix feet, the length and breadth as much as may in diſcretion be found neceſſary. This work you ſhould ſet about as ſoon as you can, and it muſt be ſuffered to lie mellowing as long as poſſible.

The ſea-waure and lime ſhould be nearly in equal quantities, twice as much chalk, and as much earth as will equal all the other materials taken together in quantity.

By diſpoſing them in the manner I have directed, the lower bed of earth will be greatly impregnated with the ſaline qualities of the ſea-waure, and the chalk being porous will imbibe, by the power of attraction, much of its moiſture. The lime will gradually ſlake by the dampneſs it will receive

* We ſhould imagine it would ferment better if the lime were to be laid over the firſt bed of earth, next to that the chalk, then the ſea-wrack or waure, and laſtly earth again; as the autumnal rains, ſoaking through the upper earth, would then carry with it ſome of the ſalts of the ſea-waure, and impregnate therewith the chalk: this, together with the ſlaking of the lime under it, would raiſe in it the beginning of a fermentation, ſo as to diſpoſe it to break the ſooner when laid on the land. A lump of pure chalk, laid but a little depth under the ſurface of the earth, will lie for years without diſſolving. If the autumn ſhould prove dry, we imagine it would not be amiſs to pour a moderate quantity of water over this compoſt, as it would forward the fermentation. T.

ceive from and through the earth that lies over it, and will by its conſequential warmth raiſe, as it were, the appearance of a fermentation in the chalk it covers, and cauſe it to be more readily acted upon by the influences of the air, ſun, &c. when it comes to be laid, with the reſt, on the land.

We muſt now think of what is to be done with the land before this compoſt is laid on.

To proceed then, get ſome ſoot, (if you can, wood ſoot; if not, that from London will do,) wood aſhes, and ſlaked lime, one part of each of the firſt articles, and two of the laſt. Let theſe, in January next, be well mixed together in a heap, and let your workmen ſow it by hand on the land, as it now lies in graſs, to the quantity of thirty buſhels on an acre.

If there come mild following rains, or dripping weather, as it is called, in the ſpring, you will have more feed than you would imagine could proceed from ſo ſlight a dreſſing to ſuch poor land: this is not however all the advantage that is to be expected from it; for on turning up the graſs it will diſpoſe the land to ferment and meliorate before the other compoſt is laid on.

I would have you all next ſummer feed this land, and when the hurry of your harveſt is over, give the whole of it a very deep plowing, ſo as to turn up a good deal of the clay bottom; let it then lie ſtill till it has been in ſome meaſure mellowed by the winter froſts.

When you perceive the hard clods that were turned up begin to crumble on a thaw, take advantage of the next froſt to lay about five loads * of the compoſt on each acre, which in the beginning of the winter muſt be prepared by being turned and well mixed. As ſoon as conveniently can be, after this manure is laid on, let the land be plowed, obſerving to break all the lumps of chalk that are bigger than a man's head, till they are reduced to that ſize.

Keep

* This is but a ſmall proportion; yet, as the dreſſing is more than once repeated, it may probably have the deſired effect. It muſt be allowed, that when the manure is not all laid on at once, it may be more eaſily mixed with the land, and will more gradually raiſe a fermentation. R.

Keep the land plowing the whole following ſummer, as well to keep down the roguery, as to break and reduce the ſoil, and mellow the freſh earth; but particular care muſt be taken that none of the ſucceeding plowings be deeper than the firſt.

In the following winter lay five loads more of the ſame kind of compoſt on each acre, and in the ſpring, after giving it a preparatory plowing, ſow it with oats *. Of theſe you will have of courſe a very plentiful crop †.

Let the land be then winter-fallowed, and in the firſt hard froſts lay on each acre five more loads of the compoſt; keep it plowing all the ſummer, and at the proper ſeaſon ſow it with wheat, obſerving that the ſeed be not ſpread too thick; for it will branch much, and the crop will, if the ſeaſon is any thing favourable, be very great.

When your wheat is off, turn in the ſtubble as ſoon as poſſible, and get the land into as good order as you can againſt ſpring, to ſow barley.

As ſoon as the barley is got in, the land muſt have a dreſſing of ſea-waure alone, it being laid on the ſtubble in the proportion of about one fourth part as much as you would uſe of dung. Let this be immediately turned in; and in the ſpring ſow oats, rey-graſs, and clover, to remain for two or three years, or longer if you chuſe it.

When you break up the lay you may take three ſucceeding crops, by only giving it a ſlight dreſſing of either

* With reſpect to the ſucceſſion of crops, this gentleman recommends, it need not be ſervilely adhered to; but other crops, perhaps more adapted to the farmers convenience, may be ſubſtituted, obſerving however, that wheat be not ſown firſt, but that a previous crop be taken off the land in order to abate its rankneſs. We thought it neceſſary to mention this, as there are many farmers who have land of the nature of that above deſcribed, who may be glad to make the experiment this gentleman recommends. E.

† If the land has not been well plowed, ſo as to mix the manure and under ſtratum of earth thoroughly well with the upper bed, the farmer muſt not expect his firſt crop to be conſiderable. A great part of the ſucceſs of this experiment muſt of courſe depend on the land being frequently and properly tilled; in this caſe it can ſcarcely be overdone. E.

dung or ſea-waure, and afterwards either let it lie fallow, or ſow with the laſt grain clover; or, in fact, you may manage it in the ſame manner you would any other land in good heart, by varying the crops, *&c.* remembring however, that a ſlight dreſſing in time does much more good than firſt wearing out the land, and then beſtowing a great deal of money in manure.

You may perhaps be apt to imagine that the firſt dreſſing I directed to be laid on the land, might as well be ſpared; but experience will convince you, that much of your ſucceſs will depend on it, trifling as it may ſeem; for the ſalts with which the lime, aſhes, and ſoot, are ſo ſtrongly impregnated, will, when the land is plowed, occaſion a ſlight fermentation, and thereby diſpoſe it the better to receive the compoſt when it is laid on, and to benefit by it.

The chalk * may, it is poſſible, by ſome of your neighbours be deemed ſuperfluous; but aſſure yourſelf, that though it is ſlow in its operation, it is no leſs certain; and when the effects of the lime and ſea-waure begin to diſappear, the chalk will be found a great fertiliſer, and the benefits reſulting from it will with proper care continue a great number of years: it is indeed difficult to determine how long.

Some farmers, I know, have complained that chalked land in about eighteen or twenty years grows worſe than ever it was; but when that is the caſe, it is entirely owing to the obſtinacy, ignorance, or avarice of the farmer, who tires

* In the hundreds of Eſſex they chalk annually great quantities of land; by which means farms, which had been before let at leſs than five ſhillings an acre, are often ſo much improved as to be worth from twelve ſhillings to fifteen ſhillings, and even more, *per* acre. The chalk they uſe for this purpoſe is generally brought from Kent in hoys to Malden, from whence the farmers fetch it for at leaſt fifteen miles round the country. It is to be obſerved however, that the ſoil in theſe parts is for the moſt part a ſtiff, and almoſt untractable clay; yet, when thus manured with chalk, it breeds as fine wheat as any part of England: the quantity they lay on is from ten to twenty waggon loads an acre. The benefit ariſing from chalk is not for the firſt year or two much perceived; but from the third year the land bears amazing crops for twenty years together with proper care, and a moderate portion of manure well timed. H.

tires his land out with repeated crops, without ever giving it the neceſſary intermediate dreſſings. A moderate quantity of a compoſt made of yard-dung and lime, laid on chalked land once in three years, would greatly contribute to prevent its being impoveriſhed.

You may be already almoſt tired of this long letter; but I thought it beſt to lay the whole matter before you at one view.

You have, if you make a proper uſe of it, a treaſure, in being within reach of the ſea-waure: the farmers in your neighbourhood will probably perſuade you to lay it on, as they commonly do, unmixed; but aſſure yourſelf that in moſt caſes it ſucceeds much better when mixed with lime and earth, and if lime is not proper for the ſoil, earth alone.

As to the ſtiff clay which you mention to be the ſoil of your *upper toft field*, I do not know any thing that I can recommend better than plowing it well, and often, and laying on a large quantity of ſea ſand * to break its ſtubbornneſs, you can ſcarcely over-do it. It is a good rule, never to let a ſtiff ſoil lie long ſtill without plowing. Let folks ſay what they will to you, the only danger of plowing too much proceeds from the expences that attend it.

Be free, and make any other enquiries of me you think proper. I am very much yours,

Aug. 15, 1756. E— N—.

* When a farmer who has a ſtiff clay in his poſſeſſion, is not within reach either of ſea-ſand or chalk, he may to advantage lay on pit-ſand, gravel, lime-ſtone, or brick-rubbiſh if he can procure it in ſufficient quantities: any thing that will contribute to break the ſoil, and looſen the particles of earth, will diſpoſe it to give forth its ſalts, which were before locked up; and this is, in fact, rendering it more fertile. What renders pure clay improper for vegetation is, its having too ſmall pores; ſand, on the contrary, has them too large; it muſt then neceſſarily follow, that by a judicious admixture of theſe two extremes a laſtingly-fertile earth may be obtained. E.

NUMBER VIII.

Lettre aux Directeurs du MUSEUM RUSTICUM.

J'AI vû, Meſſieurs, vôtre avertiſſement, cequi m'a, ſans mentir, donné beaucoup de ſatisfaction: J'attens avec une impatience extreme la publication de vos pieces, ou je trouverai ſans doute dequoy m'amuſer et m'inſtruire. Il y a long tems que j'ai choiſi l'Angleterre pour la patrie de mes enfans, quoique c'eſt dans la Suiſſe que j'ai pris ma naiſſance. Les Anglois ſont veritablement libres: c'eſt ici qu'on cultivent ſans ceſſe les recherches qui regardent l'agriculture, les arts, et le commerce. L'incluſe eſt une lettre que m'a ecrit mon cher frere l'hiver paſſé: ſi vous la trouvez digne d'être rendue en Anglois', j'y conſens volontiers. Ce n'eſt pas ſans plaiſir que je me ſouſſigne, ravi en admiration de vôtre deſſein patriotique, MESSIEURS,

To the Care of Mr. Newbery, *Bookſeller, in* St. Paul's Church-yard.

Vôtre ſerviteur tres humble,
I. T. N.

Tranſlation of a Letter from a Gentleman in Switzerland *to his Brother in* London, *on the Culture of Saintfoin in* Switzerland.

YOU inform me, my dear brother, that you are abſolutely determined to ſettle in England, and there ſpend the remainder of your days. Though I regret your abſence, I cannot blame your reſolution: it is a country of liberty; perhaps, in truth, more ſo than that in which you were born.

The climate of England is not to be found fault with, and muſt be particularly agreeable to you, after enduring for ſo many years the diſagreeable heat of Carolina. It is true, you have acquired a comfortable independence; and it is a mark of wiſdom in you, as well as gratitude, to reſolve to

ſpend your annual income in that country, under the protection of which you acquired your fortune.

You have bought, you ſay, a little eſtate, at no great diſtance from the metropolis, and have thought of improving ſome of the lands by ſowing ſaintfoin: you requeſt me to let you know what are the methods in practice in this country relative to that graſs, as, when you left Switzerland to go to our uncle in London, you were too young to gain the neceſſary knowledge in farming. I ſhall oblige you with pleaſure, and the rather as I have had very good ſucceſs myſelf in this particular article.

The roots of ſaintfoin penetrate very deep into the earth, by which means they do not exhauſt the ſurface ſo much as one would imagine, the vigour of the plant conſidered: the roots are perennial, and conſiſt of a white woody ſubſtance within, covered by a black outward coat or bark: from the crown of the root proceed ſeveral leaves, and ſome branches about two feet long, which incline on all ſides. Our fodder is furniſhed from theſe branches and leaves. Saintfoin is a very vigorous plant, and yields a moſt excellent fodder.

It is not nice with reſpect to ſoil, but grows in almoſt any, if we except ſuch as are clayey, very damp, and low, or ſtoney: the crop is in proportion to the goodneſs of the land; but the ſaintfoin that grows on poor land, though leſs in quantity, is moſt nouriſhing and heartening for cattle: the virtues of it ſeem concentrated, and the cattle thrive much better on it than on ſuch as grows in greater quantities on rich mellow land.

When we have it in our power to chuſe our ſituation and ſoil for ſaintfoin, we ought to prefer a light land, gently ſloping on the ſouth ſide of an eminence: here it proſpers to admiration *.

This plant does not thrive in the ſhade; for this reaſon we ſhould avoid having any trees in the fields that bear ſaintfoin: and it is ſubject to be ſometimes chilled, by having ſnow lie too long on it in winter; it ſhould not therefore be ſown on flat level land. To

* Mr. Miller, in his account of this plant, ſays it thrives on chalky hills, that have a ſurface of ſix or eight inches on the chalk, better than in any other ſoil.

To have a good crop, the land ſhould be properly prepared, by having two or three good plowings between harveſt and barley ſeed-time: the ſtones muſt be very carefully picked off the field; and it muſt be cleaned from all kinds of weed and other ſuch traſh.

If it is likely that there will be a wet ſeaſon, the ſpring is the beſt time for ſowing ſaintfoin *, as it will be much forwarder than that ſown in autumn: but if the ſpring is too dry, the ſowing will be beſt deferred till about Auguſt, as by that means the plants will have time to acquire ſtrength in their roots, and make vigorous ſhoots in the ſpring.

The farmer may take it for granted, that if the ſoil will admit of it, he cannot well plow his land too deep, or make it too fine: he will reap all the benefit of it in his ſucceeding crops.

In Switzerland we ſow it three times as thick as we do wheat; or, which amounts to the ſame thing, we uſe the ſame weight of ſeed, the ſaintfoin ſeed being ſo much ſmaller as to make that difference †.

Good ſeed ſhould be heavy, plump, bright, and of a yellowiſh red colour: if, on opening the pods, you find the ſeeds black and ſhrivelled, reject it as of no value; for it has been heated in the heap, and will not grow: if it appears white and ſhrivelled, the plant was cut before the ſeed was ripe; from this you are to expect only ſtarved, meagre, ſhort-lived plants: you muſt therefore by no means ſow it. The pods encloſing good ſeed ſhould be plump, large, and armed on one ſide with ſmall prickles; and they ſhould alſo be of a deep

* According to Mr. Miller, the beginning or middle of April is the beſt ſeaſon for ſowing ſaintfoin, obſerving always to do it in dry weather, the ſeed being apt to burſt with moiſture. The writer of this letter ſays, if the ſpring is too dry, the ſowing had beſt be deferred till autumn; and that it is only when the weather is inclinable to be wet, that the ſpring is the beſt time for ſowing it: we ſuppoſe he means only when gentle rains are expected, and not much wet weather, which, experience muſt certainly have taught him, would, as Mr. Miller obſerves, rot the ſeed. A.

† Mr. Miller ſays, three buſhels is the moſt that ſhould be ſown of this ſeed on an acre, though four is the uſual quantity: for our parts, we think two buſhels full enough; for ſaintfoin, if it has room, will branch much. A.

deep brown colour: but it is beſt not to depend on the appearance of the pods, but open them, and examine the ſeed.

The weather ſhould be mild at the time of ſowing the ſeed of ſaintfoin; and it ſhould be harrowed in, and not covered with above two inches of earth at moſt: ſome ſow it in the ſpring with oats; but this I by no means approve of: it is much better ſown alone, eſpecially if you would have a ſtrong vigorous plant, that ſhall laſt for years.

In our very poor lands in Switzerland we ſometimes purſue the following method.

Immediately after harveſt we give the land intended for ſaintfoin a good deep plowing, laying it in high ridges; in this manner it is left to be mellowed by the froſt and ſnow: we take advantage of the firſt hard froſt to carry on our dung, and manure it well.

When the froſt breaks in the ſpring, we ſpread the dung and turn it in with the plow: we afterwards beſtow at leaſt two more plowings on the land, not only to keep down the weeds, but to make the land as fine as poſſible: in autumn we ſow wheat, and have reaſon to expect a tolerable good crop.

When the wheat is got in, the land is again plowed, and left to meliorate and pulverize by the winter froſts: early in the ſpring it is plowed and laid level, the ſtones are all picked off, and the weeds cleared away: if rain is expected, it is now ſown pretty thick with the ſaintfoin, otherwiſe the ſowing is deferred till autumn. When poor land is managed in this manner, it will yield tolerable good crops of ſaintfoin for ſeveral years: it ſhould not, however, be fed the firſt year, as the treading of the cattle will deſtroy the crown of the plant, and prevent its ſhooting the ſucceeding year: and ſheep ſhould never be turned in to feed on it, as they will crop it ſo cloſe as to prevent its budding *.

Saint-

* Mr. Miller and the writer of this letter agree, that it is beſt to cut ſaintfoin: but Mr. Miller ſays, the after-crop ſhould be fed with ſheep for the ſake of their dung; whereas our writer obſerves, that ſheep ſhould at no time feed on it, leſt, by biting too cloſe, they ſhould deſtroy the crown of the roots. We are inclinable to be of this latter opinion: though we know that ſheep may, without very great danger, be turned on ſaintfoin for

Saintfoin comes up about a fortnight after ſowing it, and if the weather is moiſt, ſomething ſooner. When the plants are come up, they ſhould be ſet out at a proper diſtance with a hoe, that they may have room to ſpread. The young plants are very apt to be choked by weeds; they muſt on that account be kept very clear of weeds, till, by their branches, ſtalks, and leaves, they cover the land; after which there will be no danger of the weeds getting a-head.

As ſaintfoin ſeed is often faulty, it will not be amiſs to make a trial of it, by ſowing ſome of it in a detached bed of a garden, counting the ſeeds before they are put into the ground: by this means it may eaſily be known how many of them fail, and the quantity of ſeed to be ſown may be proportioned accordingly.

Some have aſſerted, that ſaintfoin ſhould not be mowed the firſt year: but this is an ideal precaution; for in Switzerland we think it rather does it good than harm to mow it in autumn; and experience every day convinces us we are right in our opinion. The firſt crop is not, it is true, very large; but the mowing cauſes the plants to branch, and gives ſtrength to the roots.

No cattle, as I ſaid before, ſhould be turned on ſaintfoin the firſt year: and, indeed, it is beſt, if poſſible, always to mow it. We have three crops of green fodder, or two of hay, from it, in one ſeaſon, in this country.

When we intend to ſave the ſaintfoin ſeed, we leave a part of it ſtanding, and do not cut it till we obſerve, by the colour of the pods, which will then be of a deep brown, that the principal part of the ſeed is ripe: we then either gather the heads by hand, or reap them with a ſickle, and lay them carefully on a cloth. The heads muſt be dried in layers three or four inches thick: if they were laid thicker, they would be apt to heat and ſpoil: when dry, we gently threſh them with ſticks; flails would be too heavy; for if the ſeed is the leaſt bruiſed, it does not come up. The ſtubble that remains after the heads are cut off may be mowed, and given either dry

for a little time, yet, if they feed it at all, there will always be ſome of the roots deſtroyed: we think it, therefore, moſt eligible to exclude them from this graſs, unleſs it is mowed and given to them green in cribs, which is an excellent method. A.

dry or green to the cattle; for though a little ſticky, they will not refuſe to eat it.

I generally uſe my ſaintfoin green, foddering the cattle with it as ſoon as it is cut; and this I the rather do, becauſe the making it into hay is ſuch critical work: but when there is a likelihood of my being ſhort of winter fodder, I have no choice to make.

The weather ſhould be very fine when it is cut; for as it is full of ſap, it requires great heat to dry it; and if it happens to rain, it takes more damage than common graſs; and it is beſt not to cock it *, as it is ſubject to heat in a very ſmall ſpace of time: if it is much wetted, it grows black, and loſes all its ſweetneſs.

Even when ſaintfoin is ſeemingly quite dry, it is apt to heat in the ſtack; but this is eaſily prevented by ſpreading alternately a layer of good oat or barley ſtraw, and another of ſaintfoin: when it comes to be uſed all together, it makes an excellent winter fodder.

Great care muſt be taken both in turning the ſwarths of ſaintfoin, and in loading it on the waggons, as a very little ſtirring will, when it is dry, ſhake off all the leaves; and this greatly leſſens its value: for this reaſon I make my men turn the ſwarths with the handles of their forks, which is eaſily done; and I never cart it, but either early in a morning, or late in the evening, when it is ſomewhat moiſtened by the dews.

* Here M. Miller and our writer again differ. Mr. Miller ſays, that ſaintfoin does not require to be ſo often turned as other hay; for as the ſtalks are large, they will not lie ſo cloſe in the cocks as to ferment: therefore he obſerves, that in catching weather the cocks may be made large; and if they are turned and ſpread every other day, or once in three days, there will be little danger of its heating, ſo as to receive damage; but if it is ſpread, and much expoſed to rain and dews, the goodneſs of the hay will be exhauſted. In this matter we join with Mr. Miller in opinion: perhaps the letter-writer never tried to dry it in cocks; if he had, he would probably have found it receive nearly as much benefit from the wind and air, as from the ſun. A.

Saintfoin is a very hardy plant, and bears, without being ſenſibly affected, the extremes of heat and cold; but the bottom of the land where it is ſown muſt not be wet, and there muſt be room for the roots to ſpread.

A field of ſaintfoin on a good ſoil will laſt from ſixteen to twenty years in prime, and even longer, with care; for if, after ſeven or eight years, ſome well-rotted dung is laid on it, the future crops, as well as its duration, will be greatly encreaſed. When it is ſown on light land, marling it is of very great ſervice.

But if after all a piece of ſaintfoin falls off, our method is to plow it up in autumn as deep as poſſible: give it another plowing in ſpring, ſow it with oats, plow it again immediately after harveſt, dung it, ſow it with wheat; when the wheat is off, plow it again, and giving it another plowing ſow ſaintfoin in it about the end of Auguſt; and this in general ſucceeds as well as that which was firſt ſown on the land.

Thus, my dear brother, have I written to you what occurred to me on the ſubject of the culture of ſaintfoin: if any doubts ariſe, it will give me pleaſure to be able to reſolve them for you.

Before I conclude, I muſt give you a few cautions relative to this excellent fodder, which has of late ſo much improved this neighbourhood.

It is ſo very ſweet, and cattle are ſo fond of it, that without great care they are apt to eat too much of it; whence often proceeds a ſurfeit, and ſometimes a corruption of the maſs of blood, and cutaneous eruptions: they ſhould at firſt have but a little at a time given them, that they may be by degrees habituated to it: by this management the danger vaniſhes.

It is much more proper for ſlow draught-horſes, than for ſuch as are uſed for berlins, or for riding; for it is apt to make horſes thick-winded, foggy, and ſomewhat ſluggiſh: for farmers horſes nothing can be better, or more nouriſhing; ſpeed is not required in them.

When ſaintfoin is intended to be made into hay for horſes, it is beſt not to cut it till the ſeed is formed in the

pod

pod *, as by that means the hay will be much more nouriſhing; and when the dried ſeed itſelf is plenty, nothing better can be given to the horſes by way of corn; for I can aſſure you from experience, that one buſhel of it will go as far as two of oats.

When ſaintfoin is cut to be given green to cattle, it is beſt to mow it when it is in full bloom, as it is then moſt juicy, and fulleſt of ſap, and will conſequently afford moſt nouriſhment to the cattle. The beſt way of managing is to cut no more than will ſerve for the day; and by properly apportioning, or parcelling out the field, there will be, during the whole ſummer, ſome of it in order to cut for green fodder.

If this green fodder is intended for ſheep, it may with great propriety be cut juſt before it flowers: the ſtalks are then in a tender ſtate, and very nouriſhing and good either for weathers or ewes. When it is to be made into hay for ſheep, the ſame rule ſhould be obſerved.

I have very little more to ſay on the ſubject of ſaintfoin, except that, as when a ſaintfoin lay is brought into tillage, it prepares land very well for wheat or rye, and bears good crops, there is ſeldom occaſion among the good farmers to try how long it will continue in heart, as they generally break up theſe lays in turn, and find it advantageous ſo to do.

You need not, my dear brother, be backward in laying your commands on me; particularly, when they are to

* Mr. Miller ſays, that thoſe who are deſirous to have the hay in perfection, ſhould cut it before it begins to flower, when it abounds more with juice, and will nouriſh cattle much more than that which ſtands to be in full flower. The opinions of theſe two gentlemen in this matter ſeem to be quite oppoſite; yet may they be reconciled: the lands on which ſaintfoin is generally grown in Switzerland are poor; on ſuch it is certainly beſt not to cut it till the ſeed is formed, as the hay will thereby be more heartening, and the poverty of the land will prevent the plants from being large and ſticky; whereas in our rich lands, were the ſaintfoin left till the ſeed was formed, the hay would be much too coarſe: in rich land, plants ſeed later than in ſuch as are poor. A.

write on a ſubject which you know has been the chief amuſement, as well as buſineſs, of my life.

May God grant you many years to enjoy the ſatisfaction you muſt certainly reap in your country retreat! Agriculture has always been the employment of our anceſtors: let us not then be aſhamed of that which has for ages paſt reflected honour on them. Your loving brother,

Jan. 29, 1763. S. N.

NUMBER IX.

A Letter to the Editors, relative to an Experiment, made in the Year 1757, of tranſplanting ſome Trees in the Summer whilſt the Sap was in Motion, and they were in full Leaf.

GENTLEMEN,

IT has been an opinion generally received, that trees tranſplanted whilſt the ſap is in motion ſeldom ſucceed; therefore the gardeners recommend this work to be done betwixt the fall of the leaf, and the firſt ſhooting of the buds in the ſpring: it muſt be obſerved, that I am not here treating of evergreens, as they require a different management.

I was long in doubt whether there was any foundation for totally excluding the buſineſs of tranſplanting trees from the ſummer months. Some few years ago I had an opportunity of giving this matter a fair trial by experiment.

In the ſpring of the year 1757, I had occaſion to lay two fields into one: they were ſeparated by a ditch, and by a bank, in which grew many white bullace-trees, (*prunus ſylveſtris fructu majore albo.* Raii Syn.) ſome filberts of the kind that bears red kernels, (*corylus ſativa fructu oblongo*, C. B.) and ſome nut-trees, ſuch as are in many parts of England called *cobb-nuts*, which I take to be a ſpecies of the *corylus Byzantina* *, the nut being much larger than the common hazel-nut. All

* This *corylus Byzantina* may be found in Miller's Gadener's Dictionary, under the name of *Corylus ſtipulis linearibus acutis*: he obſerves, that it is not common in England, but grows naturally

All theſe trees bore excellent fruit: I was therefore unwilling they ſhould be entirely loſt, which probably would have been the caſe had not I interfered; for the workmen aſſured me that it was too late in the ſeaſon to tranſplant them, being about the middle of May, the ſap being in motion, and the trees in full leaf.

Being determined, however, to make an experiment at leaſt, I cauſed a corner of a field which was over-run with nettles and other ſuch traſh, to be carefully dug, and afterwards railed off. When this was done, I ordered the workmen to lay aſide all the young trees and ſhoots, in order to their being tranſplanted.

Some of the roots were cut, bruiſed, and otherwiſe injured, in taking up: theſe I made my gardener look carefully over, and cut off ſuch parts of the roots as were bruiſed, ſplit, or injured, with a ſharp pruning-knife: I then myſelf took the knife, and pruned off the heads of the plants in proportion to the loſs they had ſuffered in their roots; from the heads of ſuch as were taken up with their roots nearly entire I cut very little.

My next work was to have them planted, which was done in the following manner: the plants which were taken up with the roots entire, were firſt carried to the ground; holes were dug in rows at about three yards diſtance for the bullace-trees; when they were put into the ground, the earth was carefully ſettled about their roots, and ſtakes were driven into the ground to prevent their being ſhaken by the winds: in this manner all the plants were removed, care being taken to give them plenty of water for ſeveral ſucceſſive evenings.

Any

turally near *Conſtantinople*; that they are of the ſame form as common hazel-nuts, but more than twice as large: the cups in which the nuts grow are, he ſays, large, deeply indented at the brim, and almoſt cover the nut. One of the editors has, in ſeveral parts of England, ſeen large nuts with the above characters; ſo that perhaps this ſort of nut is not ſo ſcarce with us as has been imagined: it is much better eating than the common hazel. The *cobb-nut*, mentioned by our correſpondent, may very probably be of this kind; though, as he does not enter into the particulars of its characters, we can only judge it to be ſo from its ſize. H.

Trans = Plant the Tree as it Grew at First

Any one who is acquainted with nature muſt know that the bark on the north ſide of a tree, whilſt growing, is thicker than that on the ſouth ſide: this may eaſily be proved by cutting it with a knife: the north ſide is doubtleſs moſt expoſed to the winter's cold; this ſeems therefore to be a natural and additional defence given to trees, that they may be the better enabled to live through the winter.

Though this fact is known to many, yet few gardeners pay any attention to it, but think that it is a matter of indifference, when a tree is tranſplanted, if that ſide which faced the north when it grew in a ſtate of nature, is then turned to the ſouth, *&c.* But does this ſtand to reaſon? can it be ſuppoſed that the thin ſouthern bark is ſo capable of reſiſting the influence of the cold northern blaſts; or that the thick bark of the northern ſide, now turned to the ſouth, does not prevent the ſun acting ſo powerfully as it would otherwiſe do on the organs through which the ſap is conveyed from the roots to the branches? This you may imagine was my opinion of the matter. I therefore cauſed all the plants to be carefully marked * before they were taken up, that they might be as little ſhocked by the change of place as poſſible.

The effect anſwered my moſt ſanguine expectations, for not one in twenty of my plants failed; and what few did fail were

* There are many advocates for this method of planting; but it is not perhaps of ſo much conſequence, as the writer of this letter ſeems to make it. Mr. Miller ſays he has many times made the experiment, and could perceive no viſible difference in the thriving of the plants. We are however of opinion, that this method may be often uſeful, and ſometimes even expedient; particularly in tranſplanting trees which are not very hardy, and have yet been expoſed to the free impulſe of the air. Perhaps Mr. Miller made his experiments on plants which before ſtood thick in a nurſery: in ſuch it is not wonderful that there ſhould be no great difference in the thickneſs of the bark on the northern and ſouthern ſides, or that the plants ſhould thrive in all expoſures alike. To mark the northern ſide of a number of trees before they are tranſplanted is very eaſy; to place them, when tranſplanted, in the manner they before ſtood, can do no harm, and may chance to advance the growth of the plant: on that account we recommend the practice. N.

were ſuch as had entirely loſt their fibrous roots in taking up: theſe were by my orders placed by themſelves.

In looking over my plantation in the autumn, I found that ſuch of the bullace-trees as were taken up with their roots entire, and would have borne fruit if they had not been tranſplanted, had then ſome fruit on them, though not in ſuch plenty as might have been expected had they not been removed: they were, in fact, but very little checked in their growth.

Such as had loſt part of their roots, and were pruned in their heads, were in a very thriving ſtate, though none of them bore fruit the firſt year; the reſt, of which ſome had entirely, others only in part, loſt their fibrous roots, were conſiderably checked, and ſome quite dead; yet of theſe laſt there were much fewer than I expected, for many of them would not in all probability have lived, had they been tranſplanted in October after the fall of the leaf.

In my filberts and cobb-nuts I made the ſame obſervations, except that they neither of them bore any nuts the firſt ſeaſon.

The trees now all make a glorious figure, having thriven amazingly: I have plenty of filberts and cobb-nuts, and a proſpect of a conſiderable quantity of bullace-plums: the fruit is, if any thing, improved ſince the tranſplanting.

I attribute my ſucceſs in this experiment to ſeveral cauſes. In the firſt place it is to be obſerved, that great care was taken to ſettle the earth properly about the roots, and they were ſtaked to prevent the ſmall fibres, which they neceſſarily put forth in ſearch of nouriſhment, from being diſturbed. One principal cauſe of tranſplanted trees not ſucceeding is, that after the mouths, or pores, in the outer ſurface of the roots, have adapted themſelves to the particles of earth which ſurround them, and from which they are to imbibe nouriſhment, they are often, by ſome ſudden and violent motion of the ſtem of the tree, diſturbed: the whole proceſs muſt be again renewed; and as the firſt operation is retarded, the motion of the ſap muſt of courſe be, at leaſt for a time, checked; and this cannot but affect the whole plant.

In

In my experiment, as I have particularly mentioned above, I cauſed the aſpect of the trees to be attentively marked; and this, for the reaſons already given, I eſteem a matter of conſequence.

Where the roots were damaged I cauſed them to be cut off with a ſharp knife, and pruned the heads in proportion only to the loſs of roots they had ſuſtained. If the damaged parts of the roots had not been cut off, I am apt to think thoſe parts might have imbibed too much moiſture, which, together with an extravaſation of fermented ſap, would have brought on a *caries*, (a decay) which might probably have been fatal to the plant.

The roots were cut ſloping *, the flat ſurface being under the roots, ſo as to bear on the ground when the tree was ſet erect.

Many are fond, when they tranſplant, of taking off the greateſt part of the branches of a tree; but this is very bad management: every branch is ſuppoſed to have its correſpondent root in the earth, on which it acts by attraction, ſomewhat like a ſyphon; the ſap riſing from the roots nearly in the ſame proportion it is tranſpired through the branches and leaves †.

If this is the caſe, it muſt ſtand to reaſon, that on tranſplanting a tree, it is much better to leave too much than too little head on: the greater the attraction is from above, the more eager will the roots be to ſend forth their fibres in

* This is a very good way; for the rain ſoking perpendicularly through the earth, leſs of it is imbibed by the wound in the root when it is cut ſo as to have the ſlope downwards. N.

† Mr. Miller is alſo of opinion, that the heads of trees ſhould not be too much cut on tranſplanting; and he mentions in his Gardener's Dictionary, under the article *Planting*, an experiment which he made on two ſtandard almond-trees in the year 1733. The branches of one of them he pruned in the uſual manner; from the other he only cut off the ſmaller branches, and ſuch as were bruiſed or broken: theſe were, when removed, as nearly as poſſible, of equal ſtrength, and of the ſame age; they were planted in the ſame ſoil, and to the ſame ſituation; had equal attendance, and were managed, as nearly as could be, in the ſame manner; yet in the ſpring, when theſe trees began to ſhoot, that whoſe branches were moſt preſerved had greatly the advantage of the other, being much more vigorous, ſtrong, &c. N.

in ſearch of the neceſſary food; and when once the ſap is put in motion by this powerful attraction, ſo that the life of vegetation is, as it were, renewed, then, and not till then, is the time to abſtract any of the branches; and it ſhould be done with ſuch diſcretion, that the parts to be fed may be as nearly as poſſible proportioned to the ſtate and abilities of the parts which are to go in ſearch of, and provide, food.

When trees are tranſplanted in autumn, I am not for abſtracting any of their branches till ſpring; for the ſap being then, as it were, at reſt, the branches require not any freſh ſupply of nouriſhment; conſequently, if there ſhould be any deficiency in the roots, it is not ſo ſoon felt. When the heads of the tranſplanted trees come to be pruned in the ſpring, on the firſt viſible motion of the ſap, great regard ſhould be had to the ſtate the roots were in at the time of removal.

I have ſeen many unſkilful gardeners, when they have been about to tranſplant a tree, cut with great aſſiduity all the fibrous roots away before they would venture to put it into the earth, under a notion that theſe roots would ſpeedily rot, and thereby affect the health of the tree. But this is far from being the caſe: the fibrous roots ſhould be as much as poſſible preſerved *, and carefully ſpread, on the removal, at a proper diſtance in the earth: it is to theſe fibres the plant owes the greateſt part of the food it receives, they being by their form much better adapted, than the larger roots, to extract from the earth its nutritive juices: we may then reaſonably conclude, that when they are totally,

* We ſuppoſe this gentleman means that the fibrous roots ſhould be preſerved only when the plants are not to be removed to any great diſtance; for if the plants are to be ſent far, ſo as to be any conſiderable ſpace of time out of the ground, it is certainly much the beſt way to cut off the fibrous roots; for being of a delicate texture, they ſoon dry in the air, and loſe their imbibing faculty: if they are not then cut off, they rot in the earth, and greatly injure the new roots which are produced. Where a tree can be put into the earth before the fibrous roots are withered and dry, we recommend them to be by all means preſerved, as the plant will the ſooner vegetate, and the courſe of the ſap will be leſs interrupted: with proper care in the planting, the mouths of the fibres will ſoon adapt themſelves to the pores of the earth, and thence extract the neceſſary food. A.

or in a great meaſure, abſtracted, the vegetative power in the plant muſt be greatly weakened, its growth muſt be checked, and its health, if not its life, be fatally affected.

The uſe of theſe fibrous roots was fully verified in my experiment; for not a ſingle plant failed, which was not nearly, or totally, deprived of them: and this I was the better enabled to know, becauſe I took care to plant, in ſeparate places, ſuch as were taken up with their roots entire; thoſe which were ſomewhat, though not greatly, injured in their roots; and, finally, ſuch as were, as above deſcribed, in a manner deprived of all their fibrous roots.

I am ſenſible it may be urged, that my experiment was made on plants of a hardy nature: this is in fact true; but I ſee no reaſon to conclude, that it would have failed if tried on ſome which are of a more tender and delicate conſtitution. The principle of vegetation is alike in all plants; and though ſome may by accident be ſooner affected in their health than others, yet are there certain circumſtances, wherein all plants, which are either indigenous, or habituated to the climate, will live and proſper, and others, in which all will inſtantly die.

My experiment ſucceeded on bullace-trees, which are a hardy kind of wild plum; and the bullace differs only from the plums which are commonly cultivated in gardens, in that it has not ſubmitted to the operation of engrafting; but whether this operation ſo far affects a plant, as to make it bear tranſplanting worſe than it would do in a ſtate of nature, is with me a doubt: I am indeed rather apt to think that an engrafted tree would better bear tranſplanting than one which was never engrafted; for the courſe of the ſap in the firſt is already checked, whereas in the laſt it is free and uninterrupted.

I found this doctrine on a method which is almoſt conſtantly put in practice by the nurſery-men who ſupply the gardens about London with plants. It is for their credit that the young trees they ſell ſhould take root readily, and thrive on their removal; and in order to effectuate this, they annually remove all the plants in their nurſery, judging that when they are uſed to be thus checked, they do not ſo much

much feel the removal when they are ſold; but on the contrary, getting into better earth, which is generally the caſe, and failing of their annual tranſplanting, they thrive apace.

From what has been ſaid, I think I may reaſonably conclude, that almoſt any tree, of a moderate ſize, may without much hazard be tranſplanted in the ſummer ſeaſon whilſt the ſap is in motion *: more caution however muſt be uſed than if it was tranſplanted at any of the uſual times of doing that work; and the great care is, ſo to diſpoſe the roots in the new earth, that they may be enabled with the greateſt expedition to collect a freſh ſupply of nouriſhment, ſo as to check as little as poſſible the vegetation of the plant.

Too little nicety is in general uſed in the buſineſs of tranſplanting: it is no unuſual thing, where a plant is well rooted, for the workman to lay the roots all of a heap in the earth; whereas they ſhould be regularly diſpoſed, as nearly as poſſible, in the ſame poſition they were in before the removal of the plant. Nature is the beſt miſtreſs in huſbandry and gardening; and if we follow nature, we ſhall ſeldom fail of ſucceſs.

I muſt once more recommend it to ſuch as intend to tranſplant trees, eſpecially in the ſummer ſeaſon, that they be effectually ſecured from being ſhaken by the winds; a ſmall ſhock will diſcompoſe their roots, and even poſſibly make them fail.

I make not the leaſt doubt but very many of your readers will look upon this affair as a mere matter of curioſity, which there will be ſeldom occaſion to practiſe in the common works of gardening; but I can aſſure ſuch, that by tranſplanting carefully in the beginning of the ſummer they will ſave a whole year, and be at leaſt as forward as if they

* The writer of this letter ſeems to think, that for a tree to ſucceed when tranſplanted in the ſummer ſeaſon, it ſhould have all its fibrous roots preſerved; and this may be the fact: but then it follows of courſe, that trees cannot in the ſummer be removed to any great diſtance, as it is impoſſible to preſerve the fibrous roots, for any length of time, in a ſtate proper for imbibing the nutritive juices of the earth, particularly in the ſummer, when the air is ſo much drier than it is in the autumn and ſpring, the common ſeaſons of tranſplanting. O.

had removed their trees the preceding autumn; whereas, if they neglect the opportunity, they must of course wait till the following autumn, when the work will be done, in all likelihood, in the usual manner, and years of time lost.

My letter is, in all probability, already as long as you would chuse it: I shall, on that account, forbear reasoning any more on the subject, and conclude with an assurance of my being, GENTLEMEN,

July 16, 1763. Your most obedient servant,

S. L.

To the Care of Messieurs Davis *and* Reymers, *Booksellers, in* Holborn, London.

NUMBER X.

Mr. Jeremiah Brown's *Method of making Saltpetre* *; *published in* Virginia *by Order of the Trustees for the Improvement of Arts and Manufactures, and in* England *by Order of the Society for the Encouragement of Arts, Manufactures, and Commerce.*

SALTPETRE is to be found in tobacco-houses, stables, cow-houses, hen and pigeon-houses, and in any covered place where the influence of the sun seldom reaches. A sixty-feet tobacco-house will yield upwards of 16 C. wt. a year, and so in proportion for larger or smaller houses.

In order to prepare the floors for attracting nitre, all dung and other trash must be removed; and if the floors are not level, they must be made so by laying on marle, or any soil not too stiff, which must be lightly trod down with their feet.

The floor being thus prepared, sprinkle strong ambeer over it, made from tobacco-trash, and cover it with wet ground leaves, or other tobacco-trash, for a fortnight; then clean

* Was not this paper of real importance, and had it not been published by order of the Society, we should not have given it a place in our collection. The *Museum Rusticum* is not to consist of the gleanings of news-papers, &c.

clean out the trash, and in any cool dry morning that succeeds, you will find on the floor the nitre attracted and condensed like hoar frost; sweep this off lightly, and put it by in some hogsheads, or safe place in your house, until you have leisure to go through the following process. This work you must carefully repeat as often as you observe the above-mentioned appearance of nitre on your floors; by which means you will soon be furnished with a competent quantity to employ a leisure day.

The *process*. Make a lye from this earth in the same manner as is usually done for soap, noting that the earth is not to be hard-packed on the straw in the bottom of your lye-vessel, which would retain the water to be poured on it too long, and overcharge it with saline particles, to the great interruption of the process: place the earth hollow in the vessel, for the reception of the water; the first put to it must be warmer than new milk from the cow; afterwards add cold water: fix a vessel to receive the lye as soon as you begin to put the water in, as it will not remain long upon the earth, but in a few minutes begin to drop into the receiver: if it runs foul, it must be returned upon the earth: as soon as it has dropped a gallon, you may begin to boil it in a cast-iron pot. Every bushel of earth will require near eight gallons of water. Continue to boil it gently until you have fully charged your pot with the lye, and you will find the watry particles evaporate until it is reduced to a thick oily consistence, shooting into small icy crystals, which you will easily perceive by exposing the suds, in a spoon, to a cold place: then put the liquor out of the pot into wetted wooden trays, and set it by in a cool place for the first growth: if you accidentally boil it too thick, add a little cold water: when your trays have stood with the suds a few hours, you must raise one end to let the lye drain off from the petre-salt, which is the first growth, and which, by boiling a second time, will yield you a fresh quantity.

After it is thus drained and become dry, you may put it into casks or tubs, until you have leisure, without prejudice to your crops, to refine it.

To refine *petre-ſalt*. Put into your pot about a third of the quantity your pot will hold of this firſt growth, and ſet it over the fire: you are to be provided with an iron rod, or poker, to ſtir it: as ſoon as it begins to melt, you will ſee it begin to boil furiouſly: keep it well ſtirred down, as at this time it is very apt to take fire, which will deſtroy the whole: when you obſerve it in the boiling to look of a dirty white, ſlacken your fire, and ſtir it briſkly for a quarter of an hour; then increaſe your fire, and continue the ſtirring, though the danger of burning it is now over: the pot, before it is ſufficiently melted, will be, at the bottom, of a flaming red, and the matter will appear like boiled cream; and when it becomes whitiſh and liquid, pour it upon a ſtone, or ſome earthen veſſel, or a hard well-rammed earthen floor, clean ſwept. As ſoon as it is cold, it will become hard, and if you throw it upon a ſtone, will ring like broken china.

If you have not leiſure immediately to clarify it, put it into a tub in a dry place until ſome convenient opportunity.

To clarify coagulated *cream* of *nitre*. To every pound of this matter put ſix pound of water, after you have broke it into ſmall pieces: put your pot upon the fire, and ſtir it until it is well diſſolved; then make the fire all round the pot, which will cauſe it to boil in the middle, and prevent any waſte by its drying and ſticking on the ſides of the pot; and as ſoon as the earthy matter begins to ſettle in the pot, pour the liquid into a tray, or other open veſſel, that its ſediment may ſettle: pour off the clear liquor, and evaporate it with a gentle fire, until in a ſpoon it will ſhoot into cryſtals; then pour it into your tray, with dry ſticks fixed acroſs, ſo as to be a little below the ſurface of the liquor; ſet this by in a cool place, where it may ſtand until it ſhoots into clear tranſparent cryſtals; then gently pour off the liquor, and ſet the tray ſo as to drain it off perfectly dry.

Thus your ſalt-petre is completely made, and in a few days will be dry enough to remove out of your trays into caſks or veſſels proportioned to the quantities.

The liquor you laſt poured off muſt be again evaporated over the fire, for it will yield ſalt-petre equally good as the former;

former; and thus continue the operation, until all the watry particles are totally evaporated.

N. B. The earth from which you have extracted the ſalt-petre, and all the waſhings of your veſſels, if you lay it by thinly ſpread, in your houſe, will turn to profit, as it continues to be peculiarly proper to attract and abſorb the nitre floating in the air; add alſo the earthy matter which ſettles in the refining: and ſhould you be in want of houſe-room, you may ſpread it upon the earth, covered in the manner that fodder-ſtacks are: it will produce ſalt-petre full as well as a tobacco-houſe, taking care that the north-end be always open, and that it be defended as much as poſſible from rain.

NUMBER XI.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

ON reading your propoſals, I determined to become your correſpondent; but it took me up ſome time to conſider what ſhould be the particular ſubject of my letter.

This may probably be the caſe with many others: I therefore concluded, that a few hours of my time would be well employed in removing this difficulty.

For this purpoſe, I herewith ſend you ſome *leading queſtions* *, as I call them, for the uſe of your correſpondents. They relate chiefly to agriculture, and will ſerve to guide many, who may be inclined to write to you, in the choice of a ſubject. I owe theſe queſtions, moſt of them at leaſt, to a foreign tract.

Your humble ſervant,

Sept. 3, 1763. N. K.

* We are under great obligations to this gentleman for his *queſtions*, as we could not ourſelves have hit upon a more proper method of hinting to our correſpondents the uſeful ſubjects we would wiſh them to write on. This work is partly intended as a channel of intelligence in matters of huſbandry, commerce, &c. from one part of the Britiſh dominions to the other: we have reaſon, therefore, to hope that every uſeful method of practice, or new diſcovery, whether in agriculture, arts, manufactures, or commerce, will be communicated to us, in order to its being made known for the benefit of the community. O.

LEAD-

Leading Questions in Agriculture.

Of Waſte and Uncultivated Lands.

1. What quantity of uncultivated land is there in each of the ſeveral counties of England?

2. Is none of this land fit for tillage, and what is it worth an acre?

3. Might not ſuch as is not proper for tillage be profitably planted with timber?

4. What uſe is made of the moſſes, moraſſes, or bogs, in the ſeveral parts of the kingdom where they are to be found; and might not ſome machines be invented to leſſen the expence of draining theſe bogs?

5. Which is the beſt method of bringing a drained bog into tillage, and what crops is it beſt at firſt to ſow on it? What trees or plants thrive beſt in a moiſt ſituation?

6. Which is the beſt method of planting timber-trees, as oak, elm, aſh, firs, pines, *&c.* and what culture do they require to forward their growth?

7. Which is the moſt profitable method of falling bruſh-wood, under-wood, or ſpray; and at how many years growth ſhould the different kinds in different ſoils be cut?

8. Which is the beſt method of cultivating timber for houſe and ſhip building, and which is the beſt ſeaſon and manner of felling the trees?

9. By what cheap means can wood, particularly fir, be rendered leſs combuſtible; and may it not by ſome preparation be preſerved from decay and worms?

10. Which is the beſt method of encloſing woods?

Of Cultivated Lands.

1. What is the common price of plowed land, paſture, meadow, and wood land, in the ſeveral parts of the kingdom?

2. What crops of wheat on an acre do the lands, on an average, bear in the ſeveral counties?

Of Meadows and Paſtures.

1. Which is the beſt method of managing up-land paſtures?

2. How

2. How are the ſeveral kinds of artificial paſtures to be cultivated to the beſt advantage; and what kinds ſucceed beſt in the ſeveral ſorts of ſoil? Which are eaſieſt dried and made into hay for winter fodder; and what has been the reſult of ſeveral experiments made on this ſubject, under the various circumſtances of ſoil, ſituation, *&c?*

3. Might not tares or grey peas be to advantage ſown, to uſe either as green or dry fodder?

4. Which is the beſt method of flooding meadows?

5. How are low meadows to be managed, and which is the beſt method of improving them?

6. Which is the beſt method of preſerving the graſs, and deſtroying the weeds, in meadows and paſtures?

7. In what manner are rough meadows and paſtures beſt levelled?

8. What are the ſeveral methods of making hay, and which is the beſt?

9. What form is beſt for barns or hay-ſtacks?

10. In what manner can our winter and ſummer fodder be encreaſed; and how are we to guard againſt its bad qualities?

11. Which is the moſt profitable method in different circumſtances of uſing fodder, green or dry?

12. What is the beſt manure for meadows and paſtures; and at what ſeaſon, and in what manner, is it to be laid on?

Of Lands in Tillage.

1. What is there peculiar in the methods of huſbandry practiſed in each county?

2. Should not the land be in general plowed oftener and deeper?

3. In what proportion ſhould the different kinds of manure be laid on various ſoils; and what manure is beſt adapted to each ſoil?

At what ſeaſon, and in what manner, ſhould manures be ſpread?

Which is the beſt method of collecting and preparing natural manures?

What effects have the different kind of artificial manures, as aſhes, ſoot, tanners bark, rags, pot-aſh, &c. had on various ſoils; and what is the expence of making uſe of them?

When land is to be prepared for wheat, is it not a good practice to ſow tares or buck wheat, and plow them in, when in full ſap, as a manure?

4. Is burnbaiting or denſhiring land of any uſe; and which is the cheapeſt way of doing it?

5. What compoſts are beſt adapted to each ſoil?

6. Which are, in the ſeveral parts of the kingdom, the beſt times for ſowing the winter and ſpring corn? What method of ſowing has ſucceeded beſt on various ſoils? At what depth is it beſt to lay the ſeed under the different circumſtances of ſoil, ſituation, &c?

7. In what parts are drill plows uſed in England, and with what ſucceſs?

8. Which is the beſt method of preparing ſeed wheat?

9. What ſorts of grain are beſt adapted to the ſeveral ſoils and ſituations?

10. What is the beſt order of ſowing the ſeveral kinds of grain in the ſame land?

11. Which is the beſt method of clearing our lands from weeds?

12. What are the precautions neceſſary to be taken in weeding wheat?

13. What remedies are beſt adapted to the diſtempers of wheat before it ſpindles?

14. What is the proportion, in the ſeveral counties, of the crops of grain, one ſort compared with the others; and what is the proportion betwixt the prices of them?

15. What has been the crops of any particular field for any number of years ſucceſſively?

16. Which is the moſt advantageous method of cutting and getting in grain at harveſt?

17. What preparation does corn require in order to its being preſerved for a length of time?

18. What conſtruction is beſt for a granary, ſo as to keep corn in a ſmall compaſs, and without danger?

In what manner can corn be beſt guarded againſt the ravages of inſects, &c?

19. What

19. What precautions are neceſſary to prevent our corn from degenerating, ſo as to have good ſeed corn? Is it beſt to buy the choiceſt at the markets, or to chuſe the moſt perfect our own crops can yield?

20. Are there not ſome kinds of foreign grain, but little cultivated with us, that might to advantage be propagated in England, ſuch as the Smyrna wheat, the bere or ſquare barley, *&c?* Would not even rice grow in ſome parts of the weſt of England?

Of Flax and Hemp.

1. Which is the beſt method of preparing land for flax or hemp; and might not the huſbandry of theſe plants be improved?

2. What manure agrees beſt with theſe plants?

3. What proportion does the value of the crops bear to the expences of huſbandry, *&c?*

4. What is the beſt time of ſowing flax, or hemp, in the ſeveral parts of Great-Britain and Ireland?

5. In what manner ſhould theſe plants be managed whilſt on the land?

6. What care is required in the pulling them; and ſhould not hemp be pulled at two ſeaſons, according to its ſex?

7. What is the beſt method of dreſſing flax and hemp for the various purpoſes for which they are uſed?

8. In what manner could the culture of theſe uſeful plants be beſt encouraged?

9. Is it not beſt to ſow foreign flax ſeed?

Of Hedges and Fences.

1. Which is the moſt uſeful, convenient, laſting, and cheap fence?

2. Would not ditches only in ſomes caſes do?

3. Which is the beſt and ſpeedieſt method of raiſing a good quick fence; and how are they beſt cut, plaſhed, and kept in order?

Of the Implements of Agriculture.

1. What are the different ſorts of implements and utenſils employed in the works of huſbandry in each county?

2. What is the beſt form of borers to diſcover the quality and depth of the ſoil, *&c?*

3. What kind of inſtrument is moſt uſeful for raiſing the turf of land, in order to its being burnt?

4. What are the beſt forms of plows, harrows, and other common inſtruments, regard being had to the ſoil they are to cultivate?

5. Might not new inſtruments be invented, or brought into uſe?

6. What proportions and conſtructions are beſt for carts, waggons, tumbrils, *&c.* uſed in carrying dung, gravel, earth, corn, or fodder?

7. In what manner might the drill-plow, by being made leſs complicated, be brought into general uſe?

Of Country Labour.

1. What is the price of the ſeveral kinds of labour in the ſeveral parts of the kingdom, by the day or the piece, proper regard being had to the diſtinctions of age, ſex, ſtrength, and abilities of the labourers, and the ſeaſons of the year? What alterations have there been in this matter, and owing to what cauſes?

2. In what manner might children of different ages be moſt profitably employed, ſo as not to hurt their growth and future health?

3. What wages are given, in the ſeveral parts of England, to plowmen, threſhers, team-men, labourers, and houſhold country ſervants?

4. At what times in every county are the ſeveral works in farming performed, ſuch as ſowing, plowing, manuring, *&c?*

5. In what order ſhould theſe works be performed, ſo as to be at the leaſt expence of time and money?

Of Cattle.

1. What is the beſt form of ſtables, cow-houſes, ox-ſtalls, covered ſheep-pens, *&c.* regard being had to the convenience of ſituation, with reſpect to the dwelling-houſe, *&c.* the

ſaving

ſaving trouble in attendance, the health of the cattle, the ſaving the dung, *&c. &c?*

Of Horſes.

1. In what manner could the breed of our horſes, in ſome parts of the kingdom, be beſt improved?

2. How are the farmers to be prevented from ſpoiling young horſes by putting them too ſoon to the collar?

3. What kind of fodder is beſt adapted to draught-horſes?

4. To what particular diſorders are horſes ſubject in the ſeveral counties; and what are the cauſes of, and remedies for them?

5. What kind of geer or harneſs is beſt for draught-horſes, ſo that they may uſe their ſtrength to the greateſt advantage?

6. In what manner ſhould young horſes be fed and trained to exerciſe, regard being had to what work they are intended for?

Of Oxen.

1. Might not our breed of black cattle in ſome counties be improved?

2. What is the proper age to put oxen to work?

3. What fodder is moſt proper to feed or fat them with; and which is the beſt and cheapeſt method of doing it?

4. In what manner can they be yoked, ſo as to uſe their ſtrength to the greateſt advantage?

5. What diſtempers are oxen uſually ſubject to in the ſeveral counties, and what are their cauſes and remedies?

6. In what caſes are horſes or oxen to be preferred one to the other?

7. What number of horſes or oxen are commonly put to one plow in different ſoils?

Of Cows.

1. How much milk do cows generally give in different places at a meal?

2. In what manner are cows managed at the different ſeaſons of the year?

3. What kind of fodder makes them give the beſt milk, and moſt in quantity?

4. What

4. What are the diſtempers of cows, their cauſes and remedies?

5. In what manner is butter and cheeſe made in the ſeveral counties of England?

6. Have the farmers of Suffolk and Cambridgeſhire any thing peculiar in their method of making butter?

7. Have the farmers of Cheſhire, Glouceſterſhire, Warwickſhire, Lancaſhire, or Somerſetſhire, any peculiar way of making their reſpective ſorts of cheeſe?

8. What is the common price of thoſe cheeſes at the firſt hand, and at what fairs are they ſold?

9. Might not ſome at leaſt of theſe cheeſes be improved?

Of Sheep, Goats, and Hogs.

1. Of what kind are the ſheep bred in the ſeveral counties?

2. What kind of paſtures agree beſt with ſheep?

3. What are their diſtempers, the cauſes of them, and their remedies?

4. Is not folding them on arable land a good cuſtom?

5. What is the beſt winter fodder for them?

6. Which is the beſt method of ſhearing them?

7. Under what reſtrictions may goats be admitted in a farm?

8. How is the greateſt advantage to be made of the wool and goat's hair?

9. In what manner are hogs fed and fatted to the greateſt advantage?

10 Under what reſtrictions may they be permitted to graze in the fields?

11. Might not ſome foreign breeds be with advantage introduced?

Of the Poultry-Yard.

1. Which is the beſt method of breeding, feeding, and fattening fowls, turkeys, ducks, geeſe, *&c?*

2. Might not artificial ways of hatching fowls be with advantage practiſed?

3. What are the diſtempers of poultry, the cauſes of them, and their remedies?

4. How is the greateſt advantage to be made of their feathers?

Of

Of Fiſh.

1. Which is the beſt method of making fiſh-ponds, either for breeding or feeding?

2. In what manner might the fiſh in our rivers be better preſerved and encreaſed?

3. How can the poaching in the ponds and rivers be beſt prevented?

Of Bees.

1. Might not the number of bee-hives be to advantage encreaſed in many places?

2. Which is the beſt form for bee-hives?

3. What is the proper management of an apiary; and what is the beſt expoſure for the hives?

4. How is the greateſt advantage to be made of the honey and wax?

Of Silk-Worms.

1. In what part of his majeſty's dominions will white mulberry-trees thrive beſt? Have any experiments been made, and what has been the reſult of them?

2. What quantity of leaves have they produced in proportion to the extent of the plantation?

3. Which is the beſt method of planting mulberry-trees in different countries?

4. Might not ſome other plant be found out fit to feed ſilk-worms, at leaſt for a time?

5. Which is the beſt method of breeding and feeding ſilk-worms? What are their diſtempers, the cauſes of them, and their reſpective remedies?

NUMBER XII.

A Letter to the Editors, recommending the Culture of Vines in our North-American *Colonies* *.

GENTLEMEN,

I Perceive by your printed propoſals, which I received a few days ago, that any thing which can be of uſe to the public comes within your plan. I have long thought that good wine might be made on the continent of North America: the extent of territory we poſſeſs there is amazing, and the diverſity of climates ſuch, that, in more than one of our colonies, vines may certainly with advantage be planted. I own it is to me aſtoniſhing, that none but partial and puſillanimous trials have yet been made, in this important matter, in that part of the world. A few vines have, it is true, been planted without ſucceſs; but ſhould that deter others from making a more rational trial? Experiments injudiciouſly made are the ruin of many good projects; people are apt to conclude that, if an undertaking fails of ſucceſs in one man's hands, there is no reaſon to hope it will thrive any better, let who will attempt it. But this is, in truth, arguing prepoſterouſly: we ſhould found our reaſonings and concluſions on facts, or at leaſt on probabilities: a trifling error in the execution of an experiment may occaſion its not ſucceeding; therefore when we fail in our attempts, inſtead of giving up the undertaking, we ſhould diligently ſearch into the cauſe of the miſcarriage. It is well known that a moiſt rich land is not proper for vines; yet on ſuch kind of ſoils have vines been generally planted in America: is it then any wonder they ſhould not ſucceed? Some have planted vines, and ſuffered them to run up the neighbouring trees; but little was to be expected from this method of planting them, as they could not enjoy the

* The patriotic ſociety, of which the editors of this collection have the honour to be members, have had due attention to this important matter; and we hope, in a few years, to ſee the effects of the encouragement it has offered. N.

the full benefit of the ſun-beams, and they were too much expoſed to moiſture, not only from the dews, but from the perſpiration of the trees which ſupported them. Vines will grow and thrive almoſt in any dry ſoil, provided they have a good expoſure. The ſouth-eaſtern declivity of a hill is a proper ſituation for a vineyard, if the ſoil is light and dry. In ſuch places (and many of them are to be found in our North-American colonies) ſhould the vineyards I would have planted there, be made, there is no doubt of their ſucceeding and ripening their fruit, with proper management; and good vignerons might eaſily be procured, to inſtruct our planters, both from Germany and France.

It has, I know, been urged that the grapes cultivated in America are very apt to burſt before they are fully ripe; but this muſt either proceed from their having too much nouriſhment, or from the ſkins of the grapes being moiſtened by the damp vapour, which proceeds from the neighbouring woods. I have known, when a cherry-tree in full vigour has been loaded with fine ripe fruit, that one night's rain has made all the fruit burſt: moiſture will often have this effect on moſt kinds of fruit, particularly on cherries, plums, *&c.* When we know the cauſes of a miſcarriage in an attempt, we of courſe know how to guard againſt it for the future. I would earneſtly recommend it to the planters in our ſeveral colonies, to try, with proper precautions, their ſucceſs in planting vineyards: it would be eaſy for them to procure cuttings from the beſt vines which grow on the banks of the Rhine and Moſelle: theſe would thrive well in Virginia, Penſilvania, North-Carolina, New-York, and the province of Maſſachuſets; and able vignerons, for the purpoſe of dreſſing the vines, might probably be got, on moderate terms, from among the Germans ſettled at the back of Virginia and Penſilvania; and if not, many in Germany would be glad to remove.

As to the ſouthern colonies, Maryland, South-Carolina, Georgia, Florida, and Louiſiana, I would recommend that cuttings from the Madeira vines be planted, and I ſhould not in the leaſt doubt of excellent wine being made from them. We might, in time perhaps, be able to make as

good wines of different ſorts, as we are ſupplied with from the ſouth of France*: and that this would be a great commercial object, I need not obſerve; how great could ſcarcely be computed. Frequent complaints are made, that our North-American colonies encroach on our manufactures: I have myſelf been informed, that they make very good hats there; and could we reaſonably blame them, were they to make all the woollen and linen goods they could conſume? The ballance of trade is already againſt them, and was it not for the lumber-trade they carry on with the Weſt-India iſlands, they could never make good their home-contracts.

It is certainly our duty, here in England, to give them all poſſible encouragement to ſet up ſuch manufactories as will not interfere with our foreign trade; and it would be for our advantage, were they to ſupply us with ſuch articles as we are obliged to fetch from France, Germany, *&c.* A great deal of money is annually carried out of the kingdom, to pay for French and German wines: why then ſhould we not conſult our intereſt as a nation, and encourage the growth of vines in America? Vineyards, it is true, cannot be planted without a large expence, and make no immediate returns: it is on this account I would recommend all poſſible encouragement to be given for planting them in that continent: one great temptation will be, that when once a vineyard is properly planted, it will, if duly attended, and carefully managed, laſt 150 years †, with-

* We agree with our correſpondent, that it would be a very deſirable object, if we could by any means in our American colonies make wines, that would approach in quality to thoſe produced in the ſouth of France: it is our importation of French wines, which throws the ballance of trade ſo much againſt us with that kingdom; and what is worſe, it occaſions a great intercourſe of ſmuggling, by which means immenſe quantities of unmanufactured wool are annually exported. Was there no demand for French commodities in this kingdom, there would be no ſmuggling; for as much as the French want our wool, they would not ſuffer their bullion, or coin, to be exported to pay for it. N.

† In ſome parts of Italy they reckon a vineyard, which has not been planted 100 years, to be young. In Chianti, a vine of

without the wine produced from it being lowered in its quality. This is indeed an encouragement, ſuch an encouragement, that I hope ſoon to hear of many vineyards being planted in that part of the world. Were the coloniſts in North-America to take to making wines, we ſhould ſoon have them in great perfection from thence, and it would prevent their interfering with any of our Engliſh manufactures: on the contrary, the profits ariſing from the ſale of their wines would enable them to purchaſe all their neceſſaries from England, which it is now out of their power to do: they are therefore obliged to make them at home. This is not the only advantage which would be derived to us from vines being planted and cultivated in North-America; for they could in that caſe ſupply us with dried fruit for our home-conſumption, which is annually imported in very large quantities from the Levant.

Both wine and fruit are bulky, and would conſequently employ many thouſand tons of ſhipping annually: this would be another great advantage, as it would neceſſarily encreaſe the number of our ſeamen: the ſmall craft, in which the French wines are now imported, are of no conſequence, being navigated by a very few hands. Wines imported from America would bear a reaſonable duty, and it would be well paid, as it would be ſcarcely poſſible to carry on a ſmuggling-trade thither; and how much of this laſt-mentioned trade is carried on daily to the coaſts of France, we all too well know. Was there no conſumption of French wines in England, (and I ſee no reaſon why there ſhould, if we could have as good from America) there would be no temptation for ſmuggling them into the kingdom: ſmugglers never import any thing that is not of ready ſale, for obvious reaſons.

I know but one way to encourage the planting of vineyards, and making wines in America; which is, to grant a bounty on the firſt thouſand pipes of good wine, which ſhould

of 100 years of age is accounted young: the vines there laſt above 300 years, and in other parts of Italy, commonly 140, or 150 years. A.

be imported from any of our North-American colonies, being made from grapes which were the growth of thoſe colonies. Suppoſe this bounty was to be 30l. a pipe, I own, I ſhould think 30,000l. of the public money very well laid out in this manner, as in all probability there would be many competitors, and long before the thouſand pipes were imported, there would be many vineyards planted, and in a way of producing annually plenty of excellent wine. The proſpect of gain would probably tempt many ignorant perſons to make experiments: I ſhould imagine therefore, it would be neceſſary to point out the particular kinds of grape moſt proper to be planted in each province, as well as the proceſs they ſhould purſue in making and managing their wines: this would in a manner enſure them ſucceſs; and it is this, and this alone, which occaſions the French wines of particular growths to be ſo good as they are. Were the peaſants left to themſelves, without being reſtrained by *Ordinances*, they would ſoon reduce them to a quality greatly inferior to what they are now of. Many other regulations would be requiſite in this affair; but to mention them at preſent would ſeem ideal: I ſhall therefore conclude with aſſuring you that I am,

GENTLEMEN,

Your moſt obedient ſervant,

Sept. 1, 1763. A FRIEND to ENGLAND and her COLONIES.

NUMBER XIII.

A Letter to the Editors of the MUSEUM RUSTICUM, *recommending a ſure Method of curing Gravel-Walks, which, being in a ſhady Situation, are ſubject to breed Moſs.*

GENTLEMEN,

UNDER a notion of your admitting into your collection any thing really uſeful to the community, I trouble you with this letter.

I have near my houſe a ſmall grove, formed as it were for contemplation and retirement. Through this grove,

in which I much delight, I ſome years ago cauſed ſeveral viſtoes to be cut, and for the greater convenience of walking in them in winter, I had them all laid with gravel, with the uſual precaution of laying the bottoms with lime and brick-rubbiſh.

My walks are very much ſhaded by the trees on each ſide, and they were for ſeveral years, on this account, almoſt over-grown with moſs. I knew very well that turning them in the ſpring would cure my walks; but as there were many of them, this work came to a great deal of money; ſo that in a year or two I was tired of it, though ſtill deſirous of enjoying the benefit of my grove.

After ſome days conſideration on the ſubject, I was led to imagine that my walks might be cured by means of ſalt, as ſalt in a certain proportion is an enemy to vegetation, though greatly aſſiſtant to it in ſmall quantities properly applied.

But a difficulty ſtill occurred, for ſalt was ſo dear, on account of the heavy duty with which it is loaded, that it would be too expenſive to make the experiment.

This difficulty I at length got over: recollecting that I ſalted a great deal of meat in my family, I ordered my ſervants to pour into a barrel all the waſte brine they had, inſtead of throwing it on the dunghill, which was the uſual cuſtom. When a ſufficient quantity was collected, I added two parts of pond-water to one of the brine, and cauſed my walks to be well drenched with large watering-pots with this liquor *: I met with the ſucceſs I expected; it killed the moſs; but the brine being ſtill too much impregnated with ſalt, it granulated with the heat of the ſun, and formed a cruſt on the ſurface of the gravel: this, however, was ſoon diſſipated by pouring on it ſome freſh water, in which no brine had been put. I afterwards mixed three parts of pond-water

* This method of ſprinkling gravel-walks with brine ſeems very likely to anſwer the purpoſes intended by our correſpondent; but it does not appear to us ſo eaſy a matter to procure a ſufficient quantity of brine, and ſalt is too dear to be made uſe of: where there are not many walks ſubject to moſs, it may however be put in practice. H.

water to one of brine, and this anſwered the intention very well.

Another advantage I found from brining my gravel-walks was, that it drove away the worms, which greatly infeſted them. I imagined I had provided enough againſt worms, by laying the bottoms of the walks with brick and lime-rubbiſh; but herein I was deceived; for the gravel I uſed having a great mixture of loam, and being laid on very thick, the worms had room to harbour in it without being much affected by the lime which lay under it; and they liked their ſituation the better for the walks being ſhaded the greateſt part of the day, and being of courſe ſomewhat inclined to moiſture.

Since I moiſtened my walks with brine, no weeds have grown on them, though, for ſeveral years before, it was ſome expence to me to keep them clean weeded in the ſummer.

I now can walk with pleaſure in my grove, either in ſummer or winter, my walks being incommoded neither by moſs, weeds, nor worms.

Every autumn I cauſe them to be well moiſtened with the brine, during a whole week; and this I do to prevent their breeding moſs in the winter; and again in the ſpring I have them moiſtened with the brine, for at leaſt another week, to guard againſt weeds and worms, beſides giving them a ſprinkling every now and then in the ſummer ſeaſon, when they ſeem to want it.

I have practiſed this method now for four years, and find it anſwer every purpoſe I could wiſh from it.

Having met with ſo much ſucceſs myſelf, and being able to lay my method before the public, by means of your collection, which, you ſay in your propoſals, will make a ſpeedy appearance, I ſhould think myſelf to blame, did I not ſnatch the occaſion.

You may doubtleſs have many matters of more real importance ſent you for publication; yet, if a thing can be of any uſe at all, it ſhould not be rejected.

I ſincerely wiſh you all imaginable ſucceſs in your undertaking, as I cannot but be of opinion that your collection will,

will, on many occaſions, be a valuable *repertorium*; and as ſuch, I ſhall endeavour to diſperſe it among my friends.

Aug. 25, 1763. I am,

GENTLEMEN,

Your very humble ſervant,

For the Editors of the Muſeum Ruſticum, Z. Y.

To the Care of Mr. Newbery, *Bookſeller, in* St. Paul's Church-Yard.

NUMBER XIV.

A Letter to the Editors of the MUSEUM RUSTICUM, *from a Member of the Society for encouraging Arts*, &c. *on ſome uſeful Diſcoveries lately made in* France, *viz. An improved Method of tinning Copper Veſſels, and a new Metal nearly equal to Silver.*

GENTLEMEN,

COPPER being ſo generally in uſe for making kitchen-utenſils, the tinning of it in a proper manner was ſome years ago thought an object worthy the attention of the Society of Arts, Manufactures, *&c.* A premium was in conſequence offered, which, if I miſtake not, was gained by one Mr. *Bootie*, a braſier, who tinned a copper, capable of boiling thirty gallons, with pure grain tin, unmixed with any other extraneous adulterating matter. Veſſels tinned in this manner are ſaid to be fit for uſe much longer than thoſe tinned in the ordinary way; but whether even this method might not be improved, is worth enquiry. Copper, when heated, emits vapours which are very noxious, and communicate their qualities to whatever happens to be in the veſſels, if not tinned. This, which is certainly a ſort of poiſon, occaſions many diſorders, and often death; it is no wonder therefore that, in Denmark, I think it is, the uſe of copper veſſels in kitchens is prohibited: even in England many families make uſe, of late years, of iron ſaucepans. There is at preſent one *Vidal*, a braſier, at *Paris*, on the *Pont Marie*, who ſays he is poſſeſſed of a ſecret of tinning copper

copper veſſels in a manner peculiar to himſelf: he calls it a new diſcovery, and ſays that the veſſels tinned by him are not ſubject to verdegris, the metal he uſes being ſo pure: he alſo aſſerts the metal to be ſo hard, that it will laſt in common uſe a very long time. As the tinning copper veſſels in the beſt manner is a matter of ſuch real and great importance, I ſhould think the ſociety of arts would merit the thanks of the public, did they ſend for ſome veſſels, tinned by *Vidal*, and compare them, by proper and impartial experiments, with thoſe tinned by our countryman *Bootie*. If *Vidal*'s turn out to be beſt, it will naturally ſhew that *Bootie*'s method is capable of improvement, and point out to the ſociety an object worthy of *a handſome premium, to be given to the perſon who ſhould find out a method of tinning copper veſſels ſuperior to that now practiſed by* Bootie, *and equal, or ſuperior, to* Vidal's. We cannot be too attentive in endeavouring to bring to the utmoſt perfection every thing whereon depend the health and lives of our countrymen. It is on this account I trouble you, that upon ſeeing my letter in your collection, ſome weighty member of the ſociety may be induced to move, that ſeveral of *Vidal*'s veſſels be immediately ſent for, to be examined in the manner above deſcribed; and if the examination turns out in *Vidal*'s favour, that another motion, at a proper time, may be made for the premium above mentioned to be propoſed by the ſociety. I have ſtill another matter to mention to you.

The Sieurs *Vidal*, father and ſon, *Deſaubus* and *Ferrand*, undertook, the latter end of the year 1761, to compoſe a metal in imitation of ſilver, but without the leaſt mixture of ſilver in its compoſition. They ſo far gained their point as to make this metal white through its whole ſubſtance, without ſmell, malleable, and not brittle. In June, 1762, this metal underwent many experiments in the preſence of ſome members of the Royal Academy of Sciences, which approved of the compoſition.

Theſe gentlemen afterwards obtained letters patent for the ſole making and vending, for thirty years, any thing wrought in this metal, except drinking-veſſels and kitchen-utenſils. This leads me to imagine, that the members of the

the Royal Academy, on their examination of it, found that it poſſeſſed ſome noxious qualities; or why might it not have been brought into uſe in kitchens? I would recommend to our London Society, to ſend for ſome of this compoſition to Paris, if it is not to be had in London, and let it paſs a ſevere examination by repeated experiments. As ſoon as the parts it is compoſed of are diſcovered, it ſhould be made public, and a large premium offered to any one who could make it in a certain degree more perfect. We might perhaps, by this means, attain a method of compoſing a metal little inferior, in point of utility at leaſt, to ſilver; and if this metal could be diveſted entirely of all noxious qualities, it would, I ſhould hope, ſoon be uſed in all our kitchens inſtead of copper.

I could wiſh I had known what was the value of the metal invented in Paris; but of this I own myſelf quite ignorant. If the compoſition, or the proceſs to be uſed in making it, ſhould be very expenſive, it would by no means anſwer; though in this article we might perhaps alſo improve upon the French, by diſcovering a cheaper way of making it. We have here in England a ſort of a ſubſtitute for ſilver, called French plate; but it is only braſs ſilvered over, and that in no durable manner. It would perhaps be worth while for the ſociety to offer a premium to the man who ſhould diſcover a more perfect and durable method of ſilvering braſs, than that now in uſe. Excuſe my manner; this is only a letter of looſe hints.

I am,

GENTLEMEN,

Your humble ſervant,

Sept. 4, 1763. A BROTHER MEMBER.

NUMBER XV.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

NOTHING could offer itſelf more ſeaſonably than your collection, as a repoſitory for a letter I ſome time ago wrote to Dr. Templeman, ſecretary to the Society

of Arts, containing a deſcription of a new granary for preſerving grain from decay or injury.

As it is my intention that this matter ſhould be communicated to the public, I ſend you herewith a copy of that letter *, requeſting you will give it a place in your firſt number.

I expect much from your collection, or I ſhould not ſend you this child of my invention. I am,

A——, Sept. 26, 1763. GENTLEMEN,

Your very humble ſervant,

P. H.

A Letter to Dr. Templeman, *Secretary to the Society for the Encouragement of Arts, Manufactures, and Commerce, deſcribing a new-invented Granary for preſerving Grain.*

SIR,

WHERE public utility is in queſtion, a private apology becomes unneceſſary: accept, therefore, without ceremony, the following hints to be laid before the Society.

I have long been of opinion, that a method of preſerving grain from decay is much wanting; but it muſt be, to anſwer any good purpoſe, eaſy in its execution, and cheap in its proceſs.

The method now practiſed, of laying wheat in a room or granary, and turning it frequently with ſhovels, and ſometimes ſcreening it, is ſubject to many inconveniencies: it muſt be laid very thin, or it is apt to ferment; and by being laid thin it takes up ſo much ſpace, that to lay up and keep 500 quarters for three years only, would be conſiderably expenſive.

Could we preſerve our corn for a number of years, it would not only be of great ſervice to the public, but of no ſmall benefit to the farmers. For want of doing this, we find a great, and often a ſudden, variation in the price of bread corn: wheat will one year ſell for 5l. a load, (that is, five quarters) and the next year it will riſe to 14l. 15l. or even higher.

The

* This gentleman's letter to Dr. Templeman was read before the Committee of Agriculture, on Monday, September 12, 1763.

The rents of lands are of late greatly riſen, owing to the encreaſe of our trade; ſo is the price of all kinds of labour, inſomuch that when wheat is low in price, the great farmers are conſiderable loſers, and the poor ones are ruined: this is one reaſon why our lands are ſo much monopoliſed as they are in ſome counties. The great farmers, being rich, can afford to be loſers for ſeveral ſucceſſive years, as they are ſure that once in a while the markets will riſe, and not only repay all their loſſes, but ſecure them a large profit. The poor farmers are under a neceſſity of ſelling their corn before the winter is paſſed: if the markets are low, they fail in the payment of their Michaelmas rent, their ſtock is in conſequence ſeized, and ſome over-grown monopoliſer in the neighbourhood adds their little plot to the many formerly ſeparate farms he already holds.

Were the intereſt of the community to be conſulted, no man ſhould be allowed to rent above 300 acres of land: the profits of ſuch a farm will, with proper regulations, maintain a family decently and well; and it is not requiſite, or even ſalutary, that farmers ſhould acquire large fortunes.

But to return to my ſubject. Were a proper method projected for keeping wheat good for a number of years at a ſmall expence, all this would be remedied, our lands would no longer be monopoliſed, and corn would from year to year vary very little in price. This ſtands to reaſon; for in a very plentiful year a farmer would not ſell his corn too cheap, if he had the power in his hands to lay it up without great charges; and when the crops by any accident failed, the price of corn would not greatly riſe upon the poor manufacturer and labourer, as what had been ſome years before laid up would now of courſe be ſold at a reaſonable price, and make up the deficiency, and this without loſs to the farmer, and with great benefit to the community in general.

This intereſting ſubject has, for many years, employed my thoughts and attention; and I have in conſequence imagined, and even executed *in miniature*, or rather in ſmall dimenſions, a plan, which will, I have reaſon to think, anſwer the important purpoſes above mentioned: my whole plan conſiſts in building a proper granary, (the conſtruction of which will

not coſt much) which will keep corn for any number of years ſound, ſweet, and good, and that with very little annual expence.

I imagine the following *poſtulata* will be allowed.

If we can preſerve corn from fermentation, it will be in a way of keeping.

To keep it from damp and moiſture, is the beſt means of preſerving it from fermenting.

To move it frequently, give it air at proper times, and ſeparate the duſt and other extraneous matter, is certainly the beſt way to keep it from being moiſt and damp.

Deſtructive inſects are to be kept from it, which by frequent ſtirring is beſt effected.

I imagine there are few who have made this part of nature their ſtudy, but will allow the above poſitions: I ſhall therefore, without farther prelude, inform you in what manner I effect this at a ſmall expence.

The granary I would recommend conſiſts of ſeven ſtories of floors, and may be built in any dimenſions, provided proper proportions are adhered to.

The form of it is ſquare; and I ſhall at preſent ſuppoſe it to be fourteen feet ſquare within the rooms or cells; the diſtance from the floor of one cell to the floor of that above it is to be five feet; and the whole building ſhould ſtand on ſtrong poſts, more or leſs in number according to its dimenſions, at the diſtance of ſix feet from the ground: the ſmall ſtairs, or rather ladder, to go to the ſeveral cells, muſt be fixed to the outſide of the building ſide-ways, with a leading rail or rope to prevent falling.

The whole granary is to be built of what is generally called brick-noggin; that is, the whole is firſt framed in ſtrong timber-work, and the interſtices filled up with brick-work: the floors, beams, and joiſts, muſt be made ſtrong to bear the weight of the corn; the inſide of the cells muſt be well lined with dry oak-boards, cloſe jointed, ſo as to leave no cracks; and the outſide muſt be weather-boarded, the boards being ſtrongly nailed to the timber-work of the frame, and afterwards payed over with pitch. The floors of the cells muſt be ſo contrived as to ſhelve towards the middle, in

which

which part is to be an aperture ſix inches ſquare, to be opened, or cloſed, by means of a ſliding ſhutter, which muſt have a long handle reaching in a groove without the granary.

On three ſides of the rooms there muſt be a window, ſtrongly latticed, covered with wire to keep out larger inſects and birds, and with ſtrong ſhutters to defend the corn from the weather: on the fourth ſide is a door to each room to open from without: the windows are to be ſmall, and as cloſe as poſſible to the cieling: over the upper room or cell for the corn is a loft, on the outſide of the door of which is fixed a crane to be worked within, by a winch and flyers.

The uſe of the windows in the ſides of the rooms, is to give the corn all the benefit it can receive from the wind and freſh air: the door, when the cell is empty, gives the workmen entry to ſweep, duſt, and clean it.

My method of managing my corn in this granary is as follows.

When my wheat is thraſhed and cleaned, it is put up into ſacks, and carried to the granary: the apertures I mentioned above to have been contrived in the floors of the cells are then opened, except two, *viz.* one in the floor of the undermoſt cell, and that in the floor of the ſecond cell, reckoning from the bottom.

The ſacks are then craned up into the loft, and emptied, through a hole made for the purpoſe, into the uppermoſt cell, whence it falls through the apertures till it reaches the floor of the undermoſt cell but one, where it is ſtopped by that aperture being ſhut.

When this cell is filled to the height of about two feet from the floor, which may be ſeen through the lattices, the aperture in the floor of the third cell is ſhut by means of the ſlider: the workmen then continue craning up the ſacks, till all the cells are filled in the like proportion, except the undermoſt, obſerving the proper opportunities of ſhutting the apertures.

In this condition the corn is left for a week, or ſomewhat longer, if it was got in very dry.

The firſt ſtirring it receives occaſions very little trouble: when it has been in the granary about a week, a workman, after having ſwept and cleaned the undermoſt cell, which

was

was left empty, opens the aperture in the floor of the ſecond cell, by drawing the ſlider back: this lets the corn fall from the ſecond, into the undermoſt cell, the windows of which being open, the corn receives great benefit, as it falls, by the current of air that paſſes thro' the cell.

When the ſecond cell is empty, the aperture in the floor of it is ſhut, and the workman, going in at the door, by means of the ſtairs on the outſide of the granary, ſweeps it and cleans it from all impurities, in order to prepare it for receiving the corn of the third cell, the aperture of which is next opened, and the floors being all made ſhelving towards the middle, the corn falls gradually through, in the ſame manner it did from the ſecond to the undermoſt cell.

In this manner they are all managed, till at laſt the uppermoſt cell remains empty.

It is then left for another week, when two workmen muſt for a ſmall ſpace of time be employed: one of them goes up into the loft at the top of the granary, to work the crane, and the other takes his ſtation on the ground under the floor of the undermoſt cell: under the aperture in this floor he firſt fixes a ſcreen, upon which the corn falls, and then, by means of a conductor at the foot of the ſcreen, drops into the mouth of a ſack which hangs to it, the bottom of the ſack reſting on a miller's hand-barrow: when all is prepared, he draws away the ſlider, and lets the corn fall on the ſcreen.

When the ſack is full, the ſlider is for a moment cloſed, till another ſack on another barrow is put under the conductor: the workman then wheels the firſt ſack to the outſide of the granary, and faſtening the crane-rope to it, makes the ſignal for the other to draw it up. Whilſt this is doing, the ſecond ſack is filled, which is wheeled and drawn up in the ſame manner; and this method is purſued till the undermoſt cell is empty.

If it is neceſſary to ſcreen all the corn at this time, a ſmall ſcreen is fixed under the aperture of the ſecond cell, ſo contrived as to have a box at the back of it, which receives all the duſt, traſh, off corn, and ſeeds of weeds, that paſs though the wires; and this ſcreen is ſucceſſively fixed under every aperture, as the cells are ſucceſſively emptied.

After

After the firſt month the corn need be ſtirred in this manner only once a fortnight, and after the firſt ſix months, only once a month, unleſs the weather ſhould prove, in autumn, very hot and damp.

This then, Sir, is the manner in which I have for ſome years managed my wheat, and find it anſwers very well, the vegetative quality of the corn being preſerved in full vigour, and no ſigns being diſcoverable in it of a tendency to fermentation.

My country hovel is at ſome diſtance from London, in a retired quarter, conſequently unnoticed; and there being but little probability of this eaſy method's being ſufficiently known by my practiſing it, is the reaſon of my troubling you with this long letter, flattering myſelf that by your means it may make a proper appearance in public. Had vanity been my predominant paſſion, I might have preſented it to the ſociety in perſon, which as a member I had an undoubted right to do; but this would have been encroaching on my beloved obſcurity: to you therefore, Sir, do I truſt this child of my invention; and if in your hands he can be trained ſo as to be of public utility to my country, my every purpoſe is fully anſwered.

I forgot to obſerve, that I have lately ſeen Monſ. du Hamel's method of preſerving grain, by means of cheſts with falſe bottoms and ventilators.

This method may in ſome caſes be of ſervice, I allow; but I am nevertheleſs of opinion, that corn cannot be properly preſerved, unleſs the whole bulk of it be frequently ſtirred, which by Du Hamel's method is not done: could the current of air be equally diſtributed over the whole cheſts, and in due proportion, I ſhould ſtill think it inſufficient to preſerve the corn; and if corn has been kept for ſome time in that manner, I ſhould rather be apt to attribute it to Monſ. du Hamel's firſt drying it on a kiln, before he puts it into the cheſts, than to any regular effect of the ventilators.

Were I acquainted with this gentleman, I would recommend it to him, to make an experiment of his method in the following manner.

Let him firſt fill a cheſt with dry corn that has not been on the kiln: another cheſt ſhould be filled with ſome that had

had been well dried, and a third with the ſame dried corn: let the firſt and ſecond cheſts, at proper intervals, be ventilated, and the third be kept without ventilating, in a dry place. Were this done, I am apt to think, that after ſix months, or a longer time, there would not be found ſo great a difference as ſome may imagine, betwixt the corn which was, and that which was not, ventilated.

In my method, the expence, as well as hazard of drying, is avoided, it being never neceſſary, unleſs when corn is got in very ſoft, in a wet harveſt; and then a common malt-kiln anſwers the purpoſe very well.

I ſhould have mentioned, that in my method of preſerving corn, when by frequent ſtirrings it is become hard and brittle, it may be laid to the height of three feet, on the floors of the cells, without any danger of damage enſuing; for when it is hard, it is not ſubject to heat and ferment; neither are inſects ſo fond of attacking it.

I have by this time, perhaps, tired your attention, and to be plain, am not unweary myſelf; ſhall therefore conclude with aſſuring you that I am, SIR,

Your very humble ſervant,

A MEMBER of the SOCIETY.

Muſeum Ruſticum, &c.

For OCTOBER, 1763.

NUMBER XVI.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

I Send you encloſed, for your collection, a letter I ſome years ago received from a worthy friend. It relates to the culture and management of early tulips. I ſuppoſe gardening comes within your plan, as being a branch of agriculture.

I have raiſed ſome fine tulips in the manner recommended by Mr. Simmonds, and had no deſpicable ſhew of flowers this laſt ſpring. However, I ſeldom plant my roots above four inches deep at moſt: but then, if hard froſts come on, it will be neceſſary to cover the beds for a time with peas-haulm, or ſome ſuch matter, leſt they ſhould thereby be deſtroyed.

With regard to the compoſt-earth, I find, both by information and experience, that any thing, which will bring the mould or freſh earth to a proper ſtate of poverty, anſwers the purpoſe as well as brick or lime-rubbiſh; and that the longer the compoſt lies in a heap, to mellow and blend its parts together, the better, provided it is frequently turned.

Living in an inland county, I found myſelf at firſt greatly at a loſs for ſea-ſand: this difficulty, however, did not long embarraſs me; for I had ſome fine pit-ſand dug, and after being ſcreened, made the labourers lay it in a large heap, on which I ordered all the brine and urine that was made in my family to be poured. I had the heap often turned, and as I had occaſion, took what I wanted of it to mix with my compoſt, finding it anſwer, as a *ſuccedaneum* to ſea-ſand, to admiration.

I have at preſent only to add that I am,

July 31, 1793. GENTLEMEN,

To Meſſrs. Davis *and* Reymers, Yours, *&c.*
in Holborn.

Copy of a Letter from the Reverend Mr. Simmonds, *to Dr.* ******* *of* B——, *relative to the Management of early-blowing Tulips.*

SIR,

YOU think my tulips blow early, and preſerve their beauty a long time: for this reaſon you wiſh me to give you a few hints relative to my management of them.

Theſe, Sir, you are very welcome to; and I make not the leaſt doubt but you will ſoon have as fine a ſhew of flowers as ever I could boaſt of.

The ſoil of my beds is a light porous earth, with which I mix ſome peat, dug in a neighbouring moſs; and throwing it into a large heap, I let it lie for ſome months till the peat is well rotted; after which I get the heap turned and mixed: when I uſe it for making the flower-beds, I mix it with one eighth part of ſea-ſand, and one eighth of brick-rubbiſh which has been laid in a road, to be ground to duſt by the waggon-wheels *.

I

* Mr. Miller ſays, the beſt compoſt-earth for theſe roots is a third part of freſh earth from a good paſture, which ſhould have the ſward rotted with it, a third part of ſea-ſand, and the other part ſifted lime-rubbiſh: theſe ſhould be all mixed together ſix or eight months at leaſt before it is uſed, and ſhould be frequently turned, in order to mix the parts well together: with this mixture the beds ſhould be made about two feet deep. Mr. Simmonds

I plant my roots ſooner than moſt people do; that is, the latter end of Auguſt; and my borders, though ſheltered from the northern and eaſtern winds, are ſtill free to the acceſs of the air.

I always keep my beds free from weeds, and ſuffer as few flowers as poſſible to be gathered; by which means my roots attain their full ſtrength and vigour.

In the ſpring I keep my beds for ſome weeks covered with mats; but they lie hollow, ſo as to admit of a free current of air between the earth and the mat, as it is not ſo much to keep off the cold air, as to hinder the roots from being backened in their growth by the perpendicular chilling froſts.

When my tulips are in flower, I ſhade them with the moveable blinds you ſaw, from the intenſe heat of the mid-day ſun; by which management they preſerve their beauty a long time.

In taking up my roots I am particularly careful that they be not either bruiſed or injured: I dry them in the ſhade, and that very gradually, turning them very often; when they are thoroughly dry, I have them carefully rubbed with a ſoft bruſh, to take off the duſt from them, which might otherwiſe be a harbour to inſects or their eggs: when they are thus prepared, I put them into paper bags, which I hang up in my library, where they are kept very dry till the next ſeaſon for planting comes.

I ſhould have mentioned alſo, that I am very nice in having the earth, with which I make my beds, carefully ſcreened to take out all the ſtones; for I find by experience, that if a tulip-ſhoot meets with a ſtone in its paſſage to the ſurface, its progreſs is not only retarded, but the flower is injured, and does not laſt ſo long as the others.

monds uſes only one eighth part ſea-ſand, and another eighth of brick-rubbiſh, making one fourth part of the compoſt; whereas, in Mr. Miller's method, the ſea-ſand and lime-rubbiſh make two thirds of the whole: this is a great difference; but we ſuppoſe the light porous earth, mentioned by Mr. Simmonds, was much poorer in its nature than the freſh earth from a good paſture, recommended by Mr. Miller, therefore required a ſmaller quantity of extraneous mixture to impoveriſh it. N.

Sometimes, inſtead of the brick-rubbiſh, mentioned above, I mix with my prepared earth lime-rubbiſh for variety, and find it does very well.

I plant my roots about five inches deep, following in that reſpect the directions given by Mr. Miller * in his Gardener's Dictionary, where he treats of early-blowing tulips; thinking this by much the beſt method, as the roots are ſure to be in a proper poſition againſt they make their ſhoots in the ſpring; conſequently, finding leſs reſiſtance, they muſt of courſe blow earlier than flowers of the ſame kind planted in the ordinary method with a blunt dibble.

Believe me, SIR,

Your very humble and obliged ſervant,

June 3, 1750. R. W. SIMMONDS.

NUMBER XVII.

A Letter from a Member of the Society of Arts, &c. to the Editors of the MUSEUM RUSTICUM, *relative to an eaſy Method of forwarding the Ripening of Grapes in* England.

GENTLEMEN,

I HAVE read your firſt publication, which has, I aſſure you, given me much ſatisfaction. I am not a little pleaſed to find, that a channel is opened through which the lovers of agriculture may convey their thoughts to the public,

* Mr. Miller directs tulip-beds to be made in the following manner. After the old earth is taken from out of the bed to the depth intended, then ſome of the freſh earth ſhould be put in about eighteen inches thick; this ſhould be levelled exactly, and then lines drawn each way of the bed chequer-wiſe: at ſix inches diſtance, upon the centre of each croſs, ſhould be placed the tulip-roots, in an upright poſition; and after having finiſhed the bed in this manner, the earth muſt be filled in, ſo as to raiſe the bed ſix or eight inches higher, obſerving, in doing this, not to diſplace any of the roots, and alſo to lay the top of the beds a little rounding to throw off the water. We muſt, however, remember, that this is meant of tulips in general; for in another place this writer mentions, that ten inches depth of earth is ſufficient for the roots of early-blowing tulips, which need not be planted more than four or five inches deep at moſt. N.

lic, with ſo little trouble to themſelves: this, Gentlemen, has prompted me to become your correſpondent, and engaged me to relate to you an experiment I made ſome weeks ago on ſome vines in my garden.

I am apt to think that very good wines might be made in England *, as our climate differs very little from ſome parts of France. There certainly were formerly many vineyards in this iſland; for there is at this time ſcarcely a gentleman's ſeat in the ſouth or weſt of England, but what has near it a ſpot of ground or field which goes under the denomination of *the vineyard*; and ſcarcely an abbey, monaſtery, priory, or nunnery, but what had *a vineyard*: by this it is evident, that much wine was in thoſe times made here.

What has been once done may certainly be done again: why then ſhould not we attempt it again, eſpecially when there is ſo great a probability of ſucceſs? I know it will be urged, that it would anſwer no good purpoſe to make wines in England, when we can have them ſo cheap from France and Portugal; but ſurely it would be worth while to ſave, by any means, the immenſe ſums which annually go to France for this commodity.

At Arundel caſtle in Suſſex, a ſeat of his grace the duke of Norfolk's, a noble vineyard was ſome years ago planted: it has ſucceeded, and annually yields conſiderable quantities of wine: there are at this time in his grace's cellar at Arundel, as I have been informed, above ſixty pipes of excellent Burgundy.

This wine is not, it is true, of quite ſo fine a flavour as the wines of *Beaune*; yet does it much exceed quantities of Bur-

* The difficulty of making good wine in England would not, perhaps, ſo much ariſe from the co'dneſs of the climate, as from the want of knowledge in the methods of managing the liquor in the vat, when it is run from the preſs. The beſt wines of France require great art, acquired by long experience, to be uſed before they are brought to their perfection of flavour: and what is ſtill a greater obſtacle is, that the liquor yielded by one ſort of grape in one vineyard, requires quite a different management from what is produced by another; ſo that often one *vigneron* knows how to manage one vineyard only, and that knowledge is ſo far a kind of inſtinct in him, that he cannot impart it. N.

Burgundy wine annually imported into England *, and moſt of what is conſumed in common in France. Whatever defect there may be in the Arundel-caſtle Burgundy, is certainly not to be attributed to any other cauſe but the vines being ſo lately planted: they are not come yet to a proper ſtate to yield wine in its utmoſt degree of perfection.

Should this vineyard continue to be properly managed, and taken good care of till it is thirty or thirty-five years old, it will be found to yield as good wine as perhaps even thoſe of *Beaune* †.

But to return to the firſt intention of my writing, which was to relate an experiment I made ſome weeks ago, I muſt take notice that my vines grow againſt two walls, one of which faces the ſouth-eaſt, the other the ſouth-weſt.

I need not tell you that the preſent ſeaſon has been very unfavourable to vines: the cold rains for ſome weeks paſt have prevented the fruit from ripening ſo well as it ſhould do,

* It is not at all ſurpriſing that his grace of Norfolk's wine, made at Arundel, ſhould not be equal to the beſt French Burgundy wines brought hither. It is well known, that the beſt wines made in France, as well claret and Champaign as Burgundy, find their way to England: we cannot, therefore, expect that ſo good wine ſhould be produced from a ſingle vineyard, as from the choice of a whole province. We can ſcarcely flatter ourſelves, that vineyards will ever again be planted with any ſucceſs in England; the Engliſh are in general of too impatient a nature, to wait thirty-five or forty years till their vines are ſo far come to perfection as to yield them rich high-flavoured wines: the expence would be very great, as the vines muſt be annually pruned and well attended to all the time; though probably for many years they may not pay the charges of doing it. The rich are too much diſſipated to think in general of ſuch improvements, and the poor are not able, were they induſtrious enough, to make ſuch expenſive experiments. A.

† The editors would be very much obliged to any gentleman who would take the trouble of ſending them ſome account of the planting the vineyard at Arundel-caſtle, and inform them what extent of ground it covers, what is the nature of the ſoil, in what expoſure it is, how much wine is made from it in a ſeaſon, in what particular manner the vines are managed, and whether any French method of preſſing and fermenting them is uſed there. Were theſe queries anſwered, it would greatly elucidate the ſubject of our correſpondent's letter: perhaps he is himſelf capable of giving ſatisfaction in theſe points. N.

do, insomuch that many grapes withered without coming to any degree of perfection.

The weather alone was then a great disadvantage to this fruit; but this was not my only misfortune; for by an unaccountable neglect my vines were never checked in the spring, nor pruned, nor nailed, during the fore-part of the summer; so that when I came to my house, the beginning of August, with an intent to pass a few months there before the parliament sat, I found them in great disorder; the walls were over-run by long dangling shoots; and the grapes on the little bunches were very small, and almost as hard as bullets: I despaired of eating a ripe bunch this season, but was, however, afterwards agreeably disappointed.

My first step was to get a new gardener, who, on the 5th of August, by my orders, pinched off all the long trailing branches, as well as the ends of the bearers a little above the bunches, and nailed the vines up close to the walls where it was necessary. The walls now made but an indifferent figure: there were, it is true, plenty of fruit on them, but it was very small, and no great probability of its ever ripening, for it was too much exposed; and I expected the skins would be rendered hard and tough by the sun, before the fruit had attained its full growth: the leaves of the vines were uncommonly small, and many of them turned the wrong way.

In this situation, I say, were my vines after pruning and nailing; but there was in a few days an alteration for the better. The weather continued cloudy and covered, the leaves resumed their proper position, and the grapes encreased in size amazingly, insomuch that at the end of the month they were to the full as forward as those of my neighbours, who had kept their vines in excellent order. I had still, however, the backwardness of the season to encounter; for my vines were so full of sap, and supplied the fruit with so much nourishment, that there was no probability of its assuming a disposition to ripen.

I found it was necessary to check the course of the sap out of the bearing branches into the bunches of fruit, as, whilst the sap flowed faster into the fruit than it could be evaporated by transpiration, the grapes could not ripen; for the

cause

cauſe of the ripening of fruit is certainly owing to a check the motion of the ſap receives from the heat of the ſun, by which means the tranſpiration gets a head, the ſuperfluous moiſture is extracted, and the fruit is brought to the verge of fermentation, that is, to maturity.

On this principle I viſited my vines on the 14th day of laſt month, and taking with me a ſharp pruning-knife, I cut the ſtalks of a large number of bunches of grapes half through, and left the reſt untouched. Though I did this with great care, yet many of the bunches were cut too far, ſo that they had not ſtalk enough left to keep them ſuſpended: theſe then I cut quite off, and ſtopping the end of the ſtalk with ſealing-wax, hung them on the branches to ſee what effect the ſun would have on them *.

I am now to tell you, that the experiment ſucceeded for the moſt part very well: the bunches of fruit which were full grown at the time the ſtalks were half cut through all ripened, and had as good a flavour as they could be expected to have in ſo indifferent a ſeaſon.

The grapes which were not full grown came indeed to ſome degree of maturity: but they had a ſour ſubaſtringent taſte, owing, I ſuppoſe, to the juices not having acquired a proper quality before the ſuperfluous moiſture was exhaled by the tranſpiration.

As to the bunches, the ſtalks of which I had ſealed, they came to little: ſome few of them, it is true, ripened; but they were no ways to be compared, in flavour, to ſuch as had their ſtalks half cut through. Some few of theſe latter are now hanging on my vines, and being rather more backward than the reſt, will be fit for gathering in a few days.

As to thoſe bunches which did not undergo this operation, not one in a hundred of them are come ſo far to maturity as to be eatable; neither is there any probability of their ripening

* This method of ſtopping the ends of the ſtalks of bunches of grapes has been often practiſed, with this difference, that it was done when they were full ripe, with an intention of preſerving them ſome part of the winter. If they are carefully hung up in a dry warm place, it often anſwers, and they keep well and ſound. N.

ing this ſeaſon, they being ſtill hard, under-ſized, and very ſour, with ſomewhat of a woody, diſagreeable, crude taſte.

The grapes which grew on the vines in a ſouth-weſtern expoſure, ripened ſooner than thoſe which had the benefit of the ſouth-eaſtern ſun, though of the ſame kind.

I do not claim any particular merit in having made this experiment *; it is often with great advantage practiſed by the curious vignerons in the ſouth of France, and is found to give a flavour peculiarly fine to the wine.

I own I ſhould be glad to ſee vineyards reſtored to England, and am apt to imagine they might ſucceed well.

It is my intention, God willing, to try this experiment in a more accurate manner next autumn, when I ſhall probably be able to account for ſome phænomena, which, as they at preſent puzzle me, I ſhall forbear mentioning.

In any country where vines are cultivated, this method may with advantage be uſed; and if I conjecture right, it would bring the grapes at leaſt a fortnight ſooner to a ſtate of maturity: this is no ſmall advantage, as, in the more northern countries, the vintage would, by that means, be over before the autumnal rains came on.

It is a miſtaken notion, that vines will thrive in none but very hot countries: this is ſo far from being true, that in very hot countries they will ſcarcely thrive at all; for inſtance, nothing can be more difficult than to procure good grapes in Jamaica; and they are accordingly ſeldom to be met with there, unleſs it is now and then up in the mountains in the centre of the iſland, where the climate is many degrees colder than that of the ſea-coaſts and ſavannah country.

So far is ſuch extreme heat from being neceſſary to grapes, that even froſt is often known to meliorate them and im-

* If this experiment ſhould anſwer ſo well, as it ſeems to have done with this gentleman, on farther trials, it will doubtleſs be of uſe, and may, perhaps to advantage, be practiſed on other fruits as well as grapes. We recommend it to the curious to try next year what effect an operation of the like nature will have on the lattered peaches; it may perhaps, bring them ſo forward as to ſecure their ripening conſtantly in our climates, which now in unfavourable ſeaſons they do not. N.

prove their quality, inſomuch that in ſome parts of Orleans in France, where they make the fine Muſcat wines, they ſuffer the grapes to hang, not only till they are half rotten *, but till the froſt catches them; ſometimes deferring the gathering them till the middle of November, when the icicles hang upon many of the bunches; and they are obliged to carry charcoal fires into the vineyards to warm the fingers of the gatherers. It may, perhaps, be imagined, that this rottenneſs of the grapes would have a bad effect on the wines; but the contrary is the fact; they are of a much higher flavour, and ſell at a higher price, though the grapes yield leſs in quantity of liquor. The only danger is in the grapes from which white wines are made: if the rottenneſs affects thoſe grapes before they are thoroughly ripe, the colour of the wine is apt to turn yellowiſh.

If what I have ſaid is true, there can be no doubt but that fine grapes might be cultivated in England, and probably good wines be made from them. Our ſummers are in general long enough, and warm enough, to ripen them; nothing is to be dreaded from the approach of winter; and if by chance we ſhould at any time have a backward ſeaſon, the ripening of the fruit may be haſtened by the practice above recommended, *viz.* cutting the ſtalks of the bunches half through, about three weeks before the vintage.

Had I entertained any thoughts of laying this experiment before the public, I might, it is poſſible, have been more accurate in my obſervations: ſuch as they are, they may, perhaps, induce ſome other lovers of nature to make the experiment

* Something like this is ſometimes practiſed in the cyder countries in England, where the farmers lay their apples in a heap, when they are gathered, in the orchard, and ſuffer them to remain there till they heat, and many of them rot, before they offer to carry them to the preſs: they ſay this makes the cyder mellower, though they have leſs of it. We have heard of a farmer who came to live in a county where this practice was not known. Seeing his neighbours throw away all their rotten apples, he offered to buy them at a very low rate, and mixed them with his own crop, preſſing them all together. His neighbours laughed at his folly, as they termed it; but their mirth turned to envy, when they afterwards found that his cyder was by far better, and fetched a better price, than any they had ever made. A.

periment next autumn: and it is to be hoped they will join with me in determining to communicate to you whatever obſervations are made on the ſubject, as it is far from being improbable but ſome uſeful deductions may be made from them, and ſome improved methods of practice eſtabliſhed.

Reaſon and experience warrant what I recommend: ſhould not therefore my method be adopted, I cannot ſurely be blamed for endeavouring to propagate the knowledge of it.

I am, GENTLEMEN,

Your moſt obedient ſervant,

An OLD MEMBER of the SOCIETY

Oct. 5, 1763: of ARTS, &c.

To the Care of Mr. Newbery,
in St. Paul's Church-Yard.

NUMBER XVIII.

A Letter from Mr. John Irwin *to the Editors, on the Nature of the Lime-Stone, uſed as Manure in the County of* Roſcommon *in* Ireland, *&c. &c.*

GENTLEMEN,

A Letter I had the pleaſure of writing to a particular friend of mine laſt June, on the culture of flax in that part of Ireland where I live, I obſerve, has a place in your collection.

Had I imagined any feeble efforts that come from me would be thus far honoured, I ſhould have endeavoured to dreſs them up in a more perfect manner: not but that, in the form in which they now appear, you have done me ample juſtice; ſo much ſo, that it will be an encouragement to me to venture communicating to the public, from time to time, through the channel of your Muſeum Ruſticum, (a work, which, from the firſt ſpecimen of it I have ſeen, will probably be of the utmoſt utility to all land-holders) whatever new or uſeful occurs to me from my own practice in huſbandry *.

* We are greatly obliged to Mr. Irwin for his attention to our requeſts, and hope often to hear from him; particularly on the two ſubjects he mentions in this letter, *viz.* the culture of potatoes and bere, as now practiſed in Ireland. N.

And I ſhall hope to be the more acceptable, as I ſhall probably march in a more unbeaten track than any other of your correſpondents; that of treating of the agriculture of a country which has produced few writers on the ſubject, where, however, the ſcience is much admired, but as yet badly practiſed.

Our Iriſh farmers have not the liberal notions yours in England have. If they know any thing worth communicating, they are not in haſte to impart it, being over greedy for profit, and too much taken up with good living. However, the conſtant informations from our public ſocieties, formed in the kingdom, and the great number of premiums they give, ſupply this deficiency: yet is this tenaciouſneſs of their experimental knowledge one of the chief cauſes why ſo little is wrote by the Iriſh farmers, which otherwiſe might be of great uſe to their countrymen, and of conſiderable aſſiſtance to their brother farmers here.

In your notes * on my letter, you are pleaſed to call upon me to explain ſome particulars. This I intended doing, among other matters, in ſome ſubſequent letters to my beforementioned friend, who is a great lover of agriculture: but as you obligingly invite me to a place in your monthly compilation, I dare ſay he will be as well pleaſed to have my thoughts on this ſubject communicated to him from thence, as directly from myſelf.

Lime-ſtone gravel is the common manure in the greateſt part of Ireland; and of all manures I believe there is the leaſt difference in its qualities.

That about my place †, and indeed all over that part of the country, is a ſmall round lime-ſtone pebble, of a hot nature, generally mixed with a fat, clayey, or loamy earth; for even in the ſummer-time, in digging, it comes up in clods: it is found almoſt always immediately under the ſtratum next the turf, which conſiſts of the fat earth or generative ſoil: in ſome places, however, they are obliged to dig deeper for it. There is another ſort, leſs clayey, uſed for the highways: little of this ſort is to be had immediately about me; conſequently the roads would be very bad, were it not that

* See the notes to pages 8 and 13. † *Oran*, near Roſcommon.

that we are obliged to dig deep for a poorer or more ſtarved kind, or to fetch it from a good diſtance.

The nature of the manuring lime-ſtone gravel is ſo powerful, that I have, with my own hands, ſeparated the pebbles from the clay with which they were mixed, and ſpread them on a ley ſpot of ground, cloſe eat down, towards the end of autumn, when the force of vegetation is near exhauſted; and in leſs than a month I have obſerved an amazing growth of graſs, of a moſt pleaſing dark-green verdure, to iſſue from all ſides of them.

This experiment *, ſimple as it is, has ever ſince ſatisfied me of the neceſſity, when ley-land is ſanded (as we term it), of letting the ſand lie on the turf or ſurface for at leaſt a year; for it will require a little leſs ſpace of time to imbibe its virtue. I cauſed this to be done, and my land ſtood me great proof when I came to work it. But more on this hereafter, when I write to you on the articles of potatoes and bere.

We

* It were much to be wiſhed, that every land-holder would be as cautious and prudent in this reſpect as Mr. Irwin was. Before any new manure is laid on land, it ſhould always be tried in various proportions on ſmall plots; marle, in particular, ſhould ever undergo this previous trial: our farmers would not then ſo often exclaim againſt their crops failing after their land was well manured. Great nicety is required in marling; it is very difficult to determine the preciſe quantity which ought to be laid on, as this depends not only on the nature of the ſoil, but the quality of the marle. Some marles agree very well with particular ſoils, but are fit for no other; they ſhould all therefore be tried firſt. The remarks we have juſt made on marles may be applied to all kinds of manure, particularly ſuch as are foſſil. We do not remember to have ſeen in England any lime-ſtone ſo ſtrongly impregnated with fertiliſing qualities, as that deſcribed by Mr. Irwin. Monſieur Du Hamel, in a late publication, ſays, that ſeveral years ago ſome maſons faſhioned ſome blocks of hard marble on a graſs-plat; when they had done their work, the ſervants were ordered to pick up all the fragments they could find, and ſweep the graſs clean: this was accordingly done; yet, from the duſt and very ſmall pieces which remained, the graſs in that ſpot received ſuch an addition of vigour, that it was with the utmoſt difficulty it could, by frequent mowing, be kept to a good turf. If marble has ſuch qualities, what may we not expect from ſtones of the ſame nature, though of a ſofter and looſer texture. N.

We generally dig our ſand out of pits made, or that ought to be made, in ditches; becauſe, when they are made in the open fields, the poor, who are the operators of this buſineſs, too often neglect cloſing them up; ſo that they diſfigure our paſtures, and are, in ſnowy weather, dangerous traps for our cattle to fall in.

They oftentimes let the ſand lie too long on the banks, which I don't eſteem the beſt way, as it muſt thereby, being long expoſed to the air, loſe much of its nitrous or fertiliſing quality; whereas, freſh ſpread on, the earth imbibes it all.

It is commonly laid on the land in loads, ſet down at ſmall computed diſtances: theſe loads are carried in baſkets fixed on ſlide-cars * (cars without wheels) drawn by one horſe: each load may contain about one barrel and a half † of Wincheſter meaſure, and about a hundred load to an acre of lay-land, to do it proper juſtice.

It muſt be obſerved your acre differs from ours, as about ſixteen and half does from twenty-one; ſo that ours requires the more.

The poor people are alſo very apt to let the ſand lie too long in heaps on the field before they ſpread it, which, in my opinion, abates the force of it; but they ſeldom enter into, or conſider, natural cauſes: however, it is amazing how one of them will tell at firſt ſight the difference of the preſent condition of land, what ſort of tillage it is fit for, and how long it will hold. In this the more ſenſible of them are very good adviſers; and many of them are exceedingly intelligent in the choice and feeding of cattle and curing them; yet they are ſo wedded to old cuſtoms, that they are a great hindrance to the improvements in farming, which ought to be nearly on the ſame footing there as here.

Before I finiſh this ſubject, I muſt obſerve to you, that the quality of the lime-ſtone manuring gravel is ſo ſtrong and meliorating, that when there is a ſufficient quantity laid on, it enables the land to bear many years tillage without detriment to it, and afterwards to come ſpeedily to a good ſkin (as we term it), or coat of graſs; whereas the ſame land, with

* A ſort of ſledges. † Much about ſix buſhels.

with artificial manures *, unleſs often repeated, would neither work ſo long and ſo well, nor come to a coat of graſs near ſo ſoon.

Some ſpots of land about me are ſo rich, that people think it needleſs to gravel them previous to their being tilled; but I am certain, from the obſervations I have made on the ſoil many miles about me, that in prudence no farmer ought to turn up any of it without firſt ſanding it a year before, even though he ſhould have plenty of artificial manures convenient. The ſanding does not impede the uſe of theſe, which, if laid on after it, ſo as to make the land over rich, the judicious farmer, profitably to himſelf, will find articles † to ſow in it which will draw it ſufficiently, ſo as to render it fitting for any purpoſe he may require.

Thus, without ſanding, artificial manures will meliorate our lands for a few ſeaſons, but will never enable them to ſtand, wearing and coming to graſs ſoon after, without being firſt of all properly gravelled ‡.

In Ireland, almoſt every family in the country, as you mention in your note §, manufactures their own linen, eſpecially diaper, ſheeting, and all the inferior kind: they alſo make pieces of linen for ſhirts, ſhifts, *&c.* but in this they do not ſucceed near ſo well as in the other ſorts: they cannot equal that, at leaſt to appearance, which is made up and lapped in the province of Ulſter for public ſale.

The ladies, it is true, who are the ſole conductors of this branch, take infinite pains, endeavouring to outdo each other, by getting the yarn ſpun to a great fineneſs, and having it wove by the beſt weavers; ſtill they cannot make it up ſo beautifully as the northern people do, not having the ſame methods: they boaſt, however, that theirs wears better; but I have tried both, and could not find it ſo. Certain I am, that the linen made up for ſale looks, in the wearing, infinitely the beſt;

* Such as yard-dung, ſoot, aſhes, tanners bark, *&c. &c.*

† When land is too rich in England for wheat, it is no uncommon thing to ſow oats as a firſt crop, to abate its rankneſs; and this generally anſwers the intention. Wheat in this caſe is apt to lodge, on account of the unnatural length of the ſtraw. N.

‡ We muſt remark, that Mr. Irwin uſes the words *ſanding* and *gravelling* in the ſame ſenſe, both ſignifying the laying a certain quantity of lime-ſtone on the land. N.

§ See note, page 13.

beſt; and I have made ſome myſelf of a tolerable good kind, to which I could wiſh, for the honour of my province, to give the preference; but it would not admit of it, ſo that the truth is beſt told.

Of my fine tow * (which you deſire to be informed about), I made breakfaſt-cloths, napkins, and towels, which, though I deſtined for common uſe only, might ſerve, with the greateſt credit and decency, at our country merry-makings, and which, without any boaſting, have been far ſuperior to the linen I have often ſeen on the king of France's table.

Of the inferior ſorts of tow I have made excellent ticking and huggabags.

Of the worſt, or rather coarſer ſort of all, our corn-ſacks and wool-packs are made.

Accept for the preſent theſe few obſervations, which ſhall be more fully illuſtrated hereafter under their proper reſpective heads, as I ſhould be deſirous to have it in my power to contribute, though in the ſmalleſt degree, to your collection, which, if continued, muſt be of infinite ſervice to the community; and from which I expect to draw many uſeful leſſons for my own conduct in huſbandry, ſo far as I am concerned in it, being as yet a renter but of between four and five hundred acres of land, which, in that country, is reckoned no conſiderable undertaking.

I am, GENTLEMEN,

Your very obedient ſervant,

London, Oct. 3, 1763. JOHN IRWIN.

To the Care of Meſſrs. Davis *and* Reymers,
Bookſellers, in Holborn.

* For the better underſtanding this whole letter, we muſt refer our readers to a letter writen by this ſame gentleman, and already inſerted in our collection. It is marked Number II. N.

NUM-

NUMBER XIX.

For the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

IF you deem the encloſed, which I ſent ſome time ago to Dr. Templeman, ſecretary to the ſociety for the encouragement of arts, worthy of publication, you have my conſent to print it in your collection.

I am, GENTLEMEN,

London, Oct. 5, 1763. Yours, &c. * *.

To Mr. Davis, *Bookſeller, in* Holborn, *for the Huſbandry Letters.*

To DR. TEMPLEMAN *.

SIR,

AS the patriotic ſociety for encouraging arts, manufactures, and commerce, is open to the correſpondence of every well-wiſher to the common weal, it will be, I preſume, a ſufficient excuſe for troubling you with a hint, which I think may be of ſome benefit to our Engliſh farmers: without farther apology then I ſhall proceed.

It has been obſerved, that horſes and black cattle thrive better, and get fleſh and fat ſooner, in ſalt marſhes, than in freſh-water meadows or upland paſtures; yet I do not remember ever to have heard any good reaſon aſſigned for it.

Some will tell you that the air of the ſea whets their appetites; that the paſture is rich and nouriſhing; and that the herbs produced by the lands near the ſea are more conducive to the health of herbaceous animals, than ſuch as grow on upland paſtures, whether natural or artificial.

But may we not rather attribute the thriving of cattle on theſe marſhes, to the ſaline particles † with which the earth,

* This letter was read before the committee of agriculture, on Monday, September 12, 1763.

† Perhaps the thriving condition of cattle on ſalt marſhes, may be owing to the ſalts making them drowthy; for it is an obſervation of graziers, that when cattle drink plentifully they thrive apace. T.

as well as its produce, is, when near the ſea, ſtrongly impregnated? Perhaps even the dews have their portion of ſalt*; but of this I have made no experiment, therefore mention it only as a probable conjecture; for as they fall ſoon after they are exhaled from the ſea, without paſſing through the ſecretions neceſſary to ſeparate their ſaline parts, why ſhould not this be the caſe?

But to return to my firſt ſubject: I am fully of opinion, that the ſaline particles only, with which the graſs is impregnated in the above-mentioned marſhes, cauſe cattle to thrive in them in the manner they are known to do. Theſe ſalts purge away the foul humours which the beaſts have contracted, either by idleneſs, or by being over-heated in labour; by which means they are better diſpoſed to be nouriſhed by the aliment they receive.

It may, perhaps, be objected, that if the graſs of theſe marſhes is apt to purge cattle, this very purging, by being long continued, will be a means of preventing their growing fat. To this I anſwer, that the cattle take with their food every day nearly the ſame quantity of theſe purgative particles; but that the quantity of ſalt, which at their being firſt put into the marſh will have that effect, will ceaſe producing it when they are, by cuſtom, habituated to take a daily portion of it: this muſt be allowed, as we all know, that a few grains of rhubarb will operate as a cathartic to a perſon that is not accuſtomed to take it; yet it is as well known, that a man may take many grains daily, if he uſes himſelf to it, without its being ſenſibly purgative to him.

It is not convenient to every one to ſend their cattle to a ſalt marſh: would it not, therefore, be happy, if we could ſubſtitute a method that would nearly anſwer the ſame purpoſe? I do not think this impoſſible: perhaps, if com-

* We ſhould rather imagine this gentleman to be miſtaken in his conjecture about the ſaltneſs of the dew, becauſe, in the middle of the great South ſea, the rain and miſty vapours which fall are quite freſh, and a great relief to ſeamen when they happen to be in want of freſh water. Probably the moiſture which is exhaled from the ſea is, at the ſame time, deprived of its ſaline particles, at leaſt the greateſt part of them; by which operation it is rendered a proper aliment, or at leaſt a vehicle of aliment, for men, cattle, and plants, T.

common ſea-ſalt * was to be laid in the fields for the horſes to lick as often as they pleaſed, they would thrive much better: were I to ſay I know it would have that effect, it would be no preſumption.

Cattle are naturally fond of ſalt, and if left at their liberty, will take no more of it than what does them good. With this help, our freſh-water meadows, and upland natural and artificial paſtures, would yield us a greater profit, and of courſe be worth more both to the land-owner and farmer.

Some will not allow a thing to have merit, unleſs it is ſupported by what they call a proper authority; and they do not allow the experiments of a particular perſon to be ſufficient. To ſatisfy ſuch I can aſſure you, that in the inland parts of Switzerland †, when their horſes and cattle have endured the hardſhips of a long and ſevere winter, they turn them in the ſpring looſe into the mountains, laying ſalt here and there upon the rocks, for them to reſort to when they pleaſe; and of this they are ſo fond, that when the farmers want to catch their horſes, they take ſome ſalt in their hats, as we do oats in a ſieve, to allure them,

Experience has long convinced them, that the ſalt thus laid in their way anſwers every good purpoſe: their cattle are more healthy in general than ours are in England; and almoſt to this alone do they attribute it.

In the provinces of Munſter and Connaught, in Ireland, they very frequently lay ſalt ‡ on ſlates, for the benefit of their horſes when at graſs: this, they find, does the cattle great ſervice; and in this ſhould we imitate them, and not be too proud to learn of them, becauſe in Ireland agriculture is not in ſo flouriſhing a ſtate as in England.

* This method of laying ſalt in the way of cattle, may be, perhaps, to advantage practiſed; it carries with it an appearance of reaſon: we would, therefore, recommend it to the lovers of nature and agriculture, to make repeated and diligent experiments, and let us know the reſult of their obſervations. T.

† Should any gentlemen in Switzerland incline to ſend us their obſervations on this or any other ſubject, it would be eſteemed a favour. T. O.

‡ It would be conferring an obligation on us, if any gentleman in Ireland would deſcribe to us this method of giving ſalt to cattle, as practiſed there; together with a particular account of its effects on their health, whether good or bad. T. O.

Some few farmers have (to do them juſtice) practiſed this method in our own country; but contenting themſelves with the profit reſulting from it, they have not propagated the knowledge of the many advantages they are ſenſible may be derived from this practice of giving ſalt to cattle.

The farriers and horſe-jockeys know well the uſe of ſalt; they mix it often in their medicines, and find, by experience, that nothing proves ſo powerful a ſtomachic to horſes, as a little ſalt thrown into their oats.

If the hints I have given are of ſervice, it will give me great pleaſure: but I muſt farther obſerve, that the uſe of ſalt is very proper when cattle are turned into clover *, lucerne, or cole-ſeed to feed: it is well known, that, on theſe occaſions, they are very apt, unleſs great care is taken, to be ſurfeited; the ſalt would prevent this accident, and thereby greatly accelerate the fattening of the cattle, and make it much ſafer to the farmer. I have at preſent only to aſſure you, that I am,

SIR,

Very much your humble ſervant,

AGRICULTURÆ AMATOR.

NUMBER XX.

A Letter † from Farmer M———, *of* B———d, *to the Honourable* ******* *****, *Eſq; Member of the Society of Arts, &c. on planting Potatoes, and on the Nature of the under Stratum of the Earth.*

To DR. TEMPLEMAN.

SIR,

WHEN I had laſt the honour of ſeeing you at my houſe, you were pleaſed to ſay that the potatoes we had with our mutton at dinner were the beſt and largeſt ‡ you

* If ſalt will prevent the bad effects of clover, *&c.* it will be a great acquiſition in huſbandry. T.

† This letter was read before the committee of agriculture, on Monday, September 12, 1763.

‡ A potato was dug up laſt month, September, 1763, in the county of Cork in Ireland, which weighed, if we remember right, three pound nine ounces.

you ever eat; and upon my telling you there was ſomething peculiar in their growth, you requeſted me to deſcribe to you, in a letter, the manner in which they were managed, and what ſoil they grew in. This is what I am now about to do; and you will, perhaps, be ſurpriſed to hear, that ſuch fine roots grew in what is called *barren earth*. The fact, however, is as follows.

You know the twelve-acre *Old Crote* at the back of my houſe, and cannot fail remembering the row of elms that grew on the north ſide.

Some timber being wanting to repair the out-houſes, you ordered theſe trees to be cut down and ſawn into boards: when they were felled, I got the ſtumps up for fire-wood, and made my people carry all the upper bed of earth, where they ſtood, on to the land, in order to hearten it *. When this was done, there remained behind a ſort of a browniſh-red loamy clay, very hard, yet ſomewhat crumbly.

In this manner it lay bare till February was twelvemonth, for no weeds grew on it.

In February, the man who takes care of my garden aſked me, in what part of it I would have my potatoes: I told him in no part of it, but that they ſhould be planted on the north ſide of the *Old Crote*, next the cherry-orchard: John ſeemed ſurpriſed, and ſaid, that no potatoes would grow there; for, added he, *You know, maſter, the elms are but lately fallen; and if there was any good earth, you carried it on to the land, leaving only the dead barren clay, on which even the weeds won't grow: but, however, maſter may do as he liſts, I'ſe have nothing to do but obey; he knows beſt to be ſure; but its well it an't a poor man's opinion, I know what would be ſaid then: beſides, maſter, the cherry-trees will keep off the little ſun that would fall on that ſpot, and the haulm will all rot.*

I was not, Sir, much in the humour to argue with John, being determined to make the experiment, and bad him follow me.

When

* This practice of carrying the upper bed of earth from the head and ſide lands on to the field, is very common among the Eſſex farmers: they ſay it heartens the land, and that, beſides, were it not done now and then, the head-lands would be raiſed too high by the earth which the plow carries on to them. O.

When we came into the field, I found, as he ſaid, that the ground was quite bare of weeds, and indeed of every thing elſe: but this did not diſcourage me, as I concluded it muſt be owing to its hardneſs *.

I ſet two men immediately to dig it with ſtrong ſpades and mattocks full two ſpits deep, ordering them to take up the roots of the elms whenever they met with them, and to break the clods as fine as poſſible. This was accordingly done; and I let the land lie in this manner till the latter end of March, when I planted it with potatoes in the following method.

I got ſome of the ſoundeſt roots I had in the houſe, and had them picked over and wiped, to ſeparate the rotten ones. I then cut about half of them into quarters, leaving two or three eyes on each quarter, and laid them for two days in a dry ſhady place, where there was a thorough air †: this I did to prevent their rotting in the ground, as the ſoil, I found, was rather dampiſh.

The next thing I had to do was to put them into the ground: for this purpoſe, I had a ſmall trench opened acroſs the land, about ſix or ſeven inches deep, with a ſpade: in this trench I laid the quarters of the roots two together, about eight inches diſtance: the earth of the ſecond trench ſerved

* It is our opinion, that every kind of earth is, in ſome degree or other, capable of giving nouriſhment to plants, whether it be upon or under the ſurface; yet is it neceſſary, that it ſhould be for ſome time expoſed to the influences of the air, ſun, froſt, &c. before it will be in a condition of diſpenſing its nutritive qualities. An earth ſeemingly barren, dug out of a deep pit, will, if ſpread on the ſurface, and properly ſtirred and expoſed, be ſoon in a condition of bearing plants, much more ſo than the earth, which, having been long at the ſurface, is nearly exhauſted, by the number of ſucceſſive vegetables it has given nouriſhment to. The notion of any earth being barren, merely becauſe at a diſtance from the ſurface, is, by moſt intelligent naturaliſts, exploded: it may, perhaps, want a proper diſpoſition of its particles, but the vegetative quality is ever inherent to it. O.

† This method of laying the roots after they were cut in the ſhade to dry, is worthy of imitation; the parts which were wounded form, by that means, for themſelves, a ſort of a cuticle: this prevents their being ſo ſoon injured by moiſture; and there is a greater certainty of every quarter growing; by which means there may be a great ſaving of roots in planting an acre of land. R.

ſerved to cover the roots in the firſt; and thus I continued going on till half the land was planted.

The remaining part I planted with whole roots, to try the difference; but I put them eight inches deep, and a foot aſunder, laying them ſingle, and the rows a foot from one another *. They ſucceeded to admiration; but I thought, that in the ſummer the ſtalks looked too vigorous, being very ſtrong, tall, and of a deep green colour.

I took it into my head, that the roots would grow larger if the haulm was checked: thus perſuaded, I walked over the land myſelf, treading down the ſtalks one by one. This checked the courſe of the ſap, though it did not kill the plants †; and they throve very well afterwards till autumn, when the ſtalks withering, I cauſed them to be dug up, to be laid in dry ſand for the winter: this is my way of keeping potatoes, carrots, and parſnips ‡.

I

* The diſtance Mr. M—— allowed betwixt his plants, was by far too ſmall; but the reaſon he aſſigns for it, was his land being dug ſo deep: yet we are apt to think, that had he allowed the plants a greater ſpace to ſpread in, his crop would have been as large, and he would have ſaved many roots in his planting. It is to his land being ſo well and ſo deeply dug, that we attribute his having met with ſuch ſucceſs; for had not there been a great abundance of nouriſhment, by the particles of earth being ſo much divided, the plants would, in all probability, have ſtarved each other, and the roots in general have been very ſmall. The diſtance we would recommend, is at leaſt a foot for the divided roots, and a foot and a half for the whole roots, regard being had to the richneſs or poverty of the ſoil. In Ireland they often plant them ſo near as four inches; but this is a very bad and unprofitable practice: roots are even in that country worth ſaving; for in the planting-ſeaſon they will ſometimes ſell at the rate of two ſhillings a buſhel; and in this way they allow eight buſhels, or what they call a big barrel, to an acre. E.

† Some people practiſe this method with onions, in order to make their bulbs, or roots, grow the larger: it is not improbable, but it might have been of ſervice to the potatoes, cauſing their roots to encreaſe in ſize, by diverting the courſe of the ſap, which, without this precaution, in ſuch a luxuriant ſoil, might have all been expended in the nouriſhment of a large and rambling, though almoſt uſeleſs ſtalk, uſeleſs except as far as it contributes to the encreaſe of the ſize of the root. H.

‡ Nothing is better than dry ſand to preſerve theſe roots during the winter; but they ſhould be laid in it in regular beds,

I own, Sir, I was a good deal ſurpriſed to ſee what a quantity of fine roots were thrown up; I had more in quantity, for the proportion of land, than ever I had before, and they were much larger.

The quantity of roots was much the ſame in the two parts; that is, the part which was planted with quarters, and that which was planted with whole roots *, only the potatoes which grew from the laſt were largeſt.

From this I concluded, that by planting in quarters, you may do with fewer roots; but that if we have a mind to eat very large roots, they are better planted whole.

By this trial, Sir, it is evident, that what is commonly called dead and barren earth, as lying at ſome diſtance from the ſurface, is capable of bearing good and profitable crops, and that all it requires is to be thoroughly well broke †.

It is very common for a field to have only a thin ſurface of light earth, lying on a hard bed of browniſh clay: in this caſe they never plow into the clay, ſaying, it would throw up the dead earth, ſtarve their crop, and fill the field full of wild oats: but this is all owing to their bad management; as I, perhaps, may, if your honour is not tired with this letter, tell you in another.

I intend for the future always to plant my potatoes in my field ſides: I have this year ſome planted on a head-land, which promiſe to yield a good crop. I ſhould have obſerved, that I do not in general approve of planting potatoes ſo cloſe as I have mentioned above; but this land was freſh and dug very deep, ſo that, though they might perhaps want a little room to ſpread in width, they had depth enough, and indeed they made uſe of it; for as low as the earth was looſe we found good potatoes.

They

ſo as not to touch each other, and the whole covered with dry ſtraw: they ſhould be taken out only as they are wanted, for the conſumption of the family, or the uſe of the cattle. H.

* Mr. M—— does not ſay whether he means by weight, or by meaſure, that the quantity of roots in each part was the ſame: we ſuppoſe he means by weight. We ſhould have been glad to have known what quantity of land he planted, and what was the weight of his whole crop. E. H.

† To make it fertile, it muſt be alſo for ſome time, a year at leaſt, expoſed to the influence of the air, &c. E.

They grew ſo ſtrong from the beginning, that there was no occaſion to weed them at all; though I muſt remember to tell you, that weeds enough have grown on the land ſince; for my men had enough to do to clear it for a crop of latter peas, which I ſowed there about a week ago.

I hope your honour will excuſe the aukward manner in which I have told you my ſentiments: I can relate facts, thank God, ſo as to be underſtood, but cannot boaſt of my ſtyle: were that my ambition, I muſt write more than I have leiſure to do.

My humble reſpects to Madam, and am,

SIR,

B——d, May 19, 1763. Your obedient ſervant,

A—— M——.

NUMBER XXI.

A Letter to the Editors, from a Member of the Society, recommending a cheap Method of making good wholeſome Bread when Wheat-Meal is dear.

GENTLEMEN,

WE have had this year a very wet harveſt; a great deal of wheat ſprouted in the fields before it could be got under cover; and much of it was ſo far damaged as to be incapable of keeping long. The price of bread is already raiſed upon us, and if the winter ſhould prove ſevere, it may poſſibly be ſtill a great deal dearer.

This, Gentlemen, has induced me to ſend you an account of an experiment I made ſome years ago, which ſucceeded to my wiſh: it may be of great ſervice to the poor in years of ſcarcity, and is very eaſily put in practice.

At the time I made this experiment bread was very dear, inſomuch that the poor people in the country where I live could hardly afford themſelves half a meal a day: this put me upon conſidering whether ſome cheaper method might not be found, than making it of wheat-meal.

Turneps were at that time very plentiful. I had a number of them pulled, waſhed clean, pared, and boiled: when they

were become ſoft enough to maſh, I had the greateſt part of the water preſſed out of them, and afterwards had them mixed with an equal quantity, in weight, of coarſe wheat-meal: the dough was then made in the uſual manner, with yeaſt or barm, ſalt, water, &c. it roſe very well in the trough, and after being well kneaded, was formed into loaves, and put into the oven to be baked.

I had, at the ſame time, ſome other bread made with common meal in the ordinary way. I baked my turnep-bread rather longer than the other.

When they were drawn from the oven, I cauſed a loaf of each ſort to be cut, and found, on examination, the turnep-bread was ſweeter than the other, to the full as light, and as white, but had a little taſte, though no ways diſagreeable, of the turnep. Twelve hours afterwards I taſted my turnep-bread again, when I found the taſte of the turnep in it ſcarcely perceivable, and the ſmell quite gone off. On examining it when it had been baked twenty-four hours, had I not known there were turneps in its compoſition, I ſhould not have imagined it: it had, it is true, a peculiar ſweetiſh taſte, but by no means diſagreeable; on the contrary, I rather preferred it to the bread made of wheat-meal alone.

After it had been baked forty-eight hours, it underwent another examination, when it appeared to me to be rather ſuperior to the other; it eat freſher and moiſter, and had not at all abated in its good qualities: to be ſhort, it was ſtill very good after a week, and, as far as I could ſee, kept as well as the bread made of common wheat-meal.

In my trials of this bread by the taſte, I was not ſatisfied with eating it by itſelf; I had ſome of it ſpread with butter; I taſted it with cheeſe; I eat of it toaſted and buttered, and finally in boiled milk, and in ſoup: in all theſe forms it was very palatable and good.

When I had thus far ſucceeded, I had ſome more of it made in the ſame manner, and after it was baked and cold, I ſent for ſome of my poor neighbours, giving them of it to eat: they ſaid there was ſomething particular in the taſte of it, but could not tell what to reſemble it to: they allowed it

was not disagreeable; yet, when I told them in what manner it was made, they declined eating any more of it, alledging it was not what they were used to; and no persuasions were powerful enough to induce them, though wheat was then at a very high price, to make some of it for their family use.

Thus does prejudice often get the better of reason: they would not depend on the truth of what they saw, heard, and felt, but rather chose to eat wheaten bread, as their fathers had done, than make some of a mixture of wheat-meal and turneps, which would not cost them above half so much.

I am very much inclined to think, that very good bread might, in the same manner, be made, in times of scarcity, with carrots, parsneps, potatoes, Jerusalem-artichokes, and many other articles, which might be raised at a trifling expence: the carrot-puddings and the potato-puddings, which are both frequently seen at the tables of the great, have no particular taste of the respective roots they are made of; and this would, I dare say, be the case with the bread.

Yet, after all, let the bread made of these several articles be ever so good, of what avail is it if vulgar prejudices are so hard to be got over, that even hunger will not persuade the poor to eat of them? But this may not be the case every where; and if once, in a time of scarcity, the custom of making bread from some of these materials, was adopted in a particular place, it would soon spread, and become in a manner general.

It is for the interest of the community, that the food of the poor should be as various as possible: whilst their chief food is bread made of wheat-meal only, every time the crop of wheat fails, they are driven to the greatest distress; whereas, had they other ready and cheap resources, this would never be the case.

When wheat is dear, turneps or potatoes are frequently to be had at a reasonable rate; but if prejudice steps forward, and forbids the use of them, of what avail is it?

The poor in Ireland, God knows, have very little bread to eat, potatoes and milk being almost their only food: when the crops of potatoes fail, their misery is great indeed;

and all this is owing to their food being, as it were, confined to the ſingle article of potatoes.

But little wheat, in compariſon to the number of inhabitants, is bred there: the farms are all engroſſed by overgrown undertakers *, who, ſome of them, hold upwards of 3000 acres of land, which they depopulate, leaving only perhaps ſix or eight ſhepherds cots: for this land they pay, it may be, about ten ſhillings an acre; but if a poor man wants an acre of it to plant in potatoes, they will not let it to him under five pounds †; and this he muſt give, or his family muſt ſtarve the ſucceeding year.

Nothing can be of more prejudice to a country than theſe large grazing farms; the poor are thereby excluded from their ſhare of the earth's produce, and are ſupplanted in their habitations by black cattle and ſheep.

It is, however, to be hoped, that the ploughing huſbandry will ſoon meet with greater encouragement in Ireland: did the land-owners know their real intereſts, this would ſoon be the caſe. I am,

GENTLEMEN,

Sept. 27, 1763. Yours, &c.

To Mr. Newbery, *in* St. Paul's Church-Yard. S——— L———.

NUMBER XXII.

A Letter to the Editors, on the Manner of improving poor Lands in Thanet, *at ſome Diſtance from the Sea, by ſowing Saintfoin*, &c.

GENTLEMEN,

MY laſt ‡ was addreſſed to one only of your members, who is my particular friend: this waits on you, collectively in a body, with thanks, for your giving place ſo readily to my thoughts in your work.

I have been greatly amuſed, ſince I have been at Margate, in ſeveral tours I have made on the ſea-coaſts, and in the interior parts of this iſland.

Though

* See the note to p. 6. † See p. 7 and 8. ‡ See N° V. p. 22.

Though the lands in general here are very rich and fruitful, owing to the good tillage, and the quantity of manure they enjoy, yet at ſome diſtance from the ſea they have land which is very barren and thin by nature; nevertheleſs, even this indifferent land they farm to the greateſt advantage. In theſe ſoils the farmers ſow ſaintfoin or French graſs with great ſucceſs, having ſometimes two loads of hay on an acre.

This graſs thrives beſt, I find, in theſe parts, on a thin coat of earth with a chalky bottom *; it puſhes its long tap-root deep into the chalk, and extracts thence a nouriſhment, which is out of the reach of almoſt any other plant.

The land muſt always be exceedingly well prepared, before they attempt to put the ſeed in the ground: it has frequent plowings, and every the leaſt appearance of a weed or root of graſs is diligently picked off: graſs in particular is a very great enemy to this plant; without the utmoſt care it ſoon chokes and deſtroys it. They ſow this ſeed in April †, either at the beginning, middle, or latter end of the month, according to the ſeaſon: dry weather is beſt, provided it does not long continue: however, a little rain in theſe light ſoils does no great hurt. The quantity of ſeed they allow to an acre is five buſhels ‡; of courſe it is ſown very thick. It does not lie any great length of time in the ground: when it is come up, they carefully hoe and weed it, to keep down the roguery and graſs: this puts the plants forward, and makes them ſo vigorous and ſtrong, that they will of themſelves keep down the graſs, eſpecially in theſe chalky bottoms, where graſs does not thrive well, and is not apt to coat land with turf.

Saintfoin uſed formerly to hold good in theſe parts for twenty years together, but it does not now of late years laſt ſo long: this is probably owing to their want of care in chuſing their ſeed, which ſurpriſes me, conſidering what good farmers they in general are. They get, it is true, when they can, the beſt ſeed § the iſland affords: but it would certainly be a much better way were they now and then to procure ſome

* See the note under page 37.
† See the firſt note, page 38.
‡ See the ſecond note, page 38.
§ For the properties of good ſaintfoin ſeed, ſee page 38.

ome of a finer growth from France; for it was from that country, as far as I can underſtand, it firſt came hither, about the latter end of Charles the Second's reign; and I do not hear from the inhabitants that they ever remember the importing any more ſince.

The climate of France is more natural to it; of courſe the ſeed comes to greater perfection there, whilſt, on the contrary, in England, that, as well as many other crops, is apt to degenerate after a certain number of years.

Where this crop takes, it is very advantageous to the farmer; it yields him for many years plenty of excellent fodder, and that upon land which would otherwiſe, perhaps, ſcarcely yield him any profit at all; and beſides all this, when the ſaintfoin begins to fail, if proper care is taken, the land when broke up will be found greatly refreſhed, and in a better condition to bear tillage and a ſucceſſion of other crops.

The farmers here, when they intend breaking up a saintfoin lay, feed it the laſt three or four years: mowing it at this time, they think, hurts and exhauſts the land too much; and beſides, the dung and urine of the cattle are of great ſervice.

They obſerve here, as well as in other places where saintfoin is cultivated, that after land has been once ſown with it, it will not again for ſome years, to any advantage, bear saintfoin again *.

They ſow alſo in theſe parts trefoil † and clover: the firſt in particular is of very great uſe, as affording plenty of feed for their ſheep; and it beſides prepares the land excellently well for ſowing wheat.

The farmers hereabout commonly let their land lie three or four years in trefoil, in which time they either mow it, or feed it with ſheep, but more generally the latter: the laſt ſeaſon

* See N° 8. page 36, *paſſim*.

† Trefoil is peculiarly well adapted to a chalky ſoil, on which the common red clover will not thrive near ſo well. In ſome parts of Eſſex they find the ſowing it turn out well to them; but their general fault is ſowing it either with barley or oats: it would do much better were it ſown alone, and would beſides yield them more advantage; but this is a doctrine few farmers underſtand. A.

ſeaſon they feed the graſs off very clean, and lay a coat of dung upon the land.

They begin ploughing about the firſt week in November, contriving ſo that the wheat ſeaſon may be over by the end of the month.

In the ſpring, if the wheat is rank and the weather dry, they feed it down with their ſheep, which they think makes the wheat branch more, and ſettles the earth about the roots of the plants *. Experience has convinced them, that this method of ſowing wheat after trefoil, is better than ſowing it on a fallow; for the land hereabout is naturally very light and hover, and the wheat on that account very much ſubject to be root-fallen. To prevent this, it is no uncommon thing for them, as ſoon as they have ſown their wheat, to drive a flock of ſheep over the land, as I obſerved above, to ſettle the earth cloſe to the ſeed.

Their crops of wheat here are generally three, four, and five quarters on an acre, which laſt is, indeed, a very large crop, when it is conſidered, that the land is in general by nature poor and barren, and that it is almoſt entirely owing to the induſtry and good huſbandry of the farmers that it is at all brought to bear wheat: in fact, they are an aſſiduous people, and ſpare neither coſt nor labour to improve their land.

On the light land here they for the moſt part ſow about fourteen pecks on an acre, but on the richer lands they allow four buſhels †.

The

* Were the Iſle-of-Thanet farmers to roll their wheat in the ſpring, it would much better anſwer the purpoſe of ſettling the earth about the roots of the plants, than turning their ſheep on it, which is a practice in general not to be approved of; for it very ſeldom does any good, and often a great deal of hurt to the crop. O.

† It is ſurpriſing that the farmers in Thanet, who are in many other reſpects ſo intelligent, ſhould not amend their practice, and ſow leſs ſeed; four pecks, and on the richeſt and deepeſt ſoil five pecks, are fully ſufficient for an acre of land: it is not neceſſary, that the land ſhould be in the ſpring covered with wheat-plants as a meadow is with graſs: it is much better that the plants ſhould have room to ſpread their roots; they will branch more, have longer and heavier ears, and the ſame ſpace of ground will at harveſt yield more good ſound corn. This matter has been

The farmers here never ſow the ſeed produced by their own land; they find their wheat ſucceed much better by change; for which reaſon the ſeed which they ſow on the light hover land they chuſe to procure from a gravel or deep cledge, or clay land, taking care that the ſoil on which the ſeed has grown ſhould be as different as poſſible from that on which it is to be ſown *.

Inſtead of making artificial ſteeps with great parade, they make uſe of that which providence has put in their way, wetting their ſeed with ſalt water which they fetch from the ſea; and they afterwards ſprinkle it with lime, to prevent the ſmut: they are alſo particularly careful to clear their ſeed from wild oats, cockle, *&c.*

I know no part of England where there are better farmers; for though they keep their lands conſtantly cropped without fallow, which they call ſowing a *round tilth*, yet do they ſo manage matters, as to keep them ſtill in good heart.

They reap their wheat very high here †, leaving as much ſtraw as poſſible in the field: this they ſay they do to ſave barn-room. Some farmers here have a practice of ſowing rye ‡ to make bands for their ſheaves, the ſtraw being longer, and as they think tougher, than that of wheat. The reaper makes the bands, which he cuts as low as he well can, and binds the ſheaves.

The wheat ſtubble which, as I ſaid before, is left very long, is generally mown for the maltſters §, as they burn it in

been often verified by experiment, yet will not the common farmers be perſuaded to alter their practice: but ſuppoſe that corn ſown thin would produce a crop only equal to that which was ſown thick, yet ſtill would the firſt be the moſt advantageous practice. If a farmer has, one year with another, thirty acres of wheat ſown annually, and inſtead of four buſhels he allows only four pecks of ſeed for an acre, he will certainly find his account in it; for if ſeed-wheat is only five ſhillings a buſhel, there will be an annual ſaving of twenty-two pounds ten ſhillings; and this is ſurely an object well worth his attention. O.

* Some of our farmers have been curious enough, in this particular, to import their ſeed-wheat from Sicily; but it being found that the wheat produced by this was too hard to be eaſily ground by our mills, this faſhion was ſoon dropped. R.

† See note to page 18.

‡ This is frequently done in France.

§ See page 19, and the laſt note at the bottom.

in their kilns to dry their pale malts for the London market. The greateſt part of this iſland is a light chalky ſoil, ſo that wet ſummers in general agree beſt with it; and it is by this means the farmers here get ſo much money: for when the crops fail in other parts of the kingdom, they are almoſt ſure here to be very large; and they have the great convenience, beſides, of water carriage to the London markets. It is extremely pleaſant, towards the latter end of the ſummer, before harveſt, to ride over this little iſland: I don't imagine there is a more improved ſpot in the kingdom; the fields are all kept ſo clear from weeds, that they reſemble a well-kept garden; they grudge no expence in hoeing, weeding, plowing, or manuring; and experience has long ago convinced them, that they purſue a right method. I ſhall, in a future letter, deſcribe to you ſome other particulars relative to their methods of huſbandry here: their practices are many of them good and worthy imitation; it would therefore be great pity if they were not made known, by ſome means or other, to the reſt of the kingdom; and I know of no channel more proper than the *Muſeum Ruſticum*: it is therefore I give myſelf the pleaſure of writing to you.

Your humble ſervant,

Margate, Oct. 10, 1763. RUSTICUS.

To the Care of Mr. Newbery,
in St. Paul's Church-Yard.

NUMBER XXIII.

A Letter to the Editors, from a Berkſhire *Farmer, recommending a very eaſy Method of encreaſing the Milk of Cows.*

THOUGH I am, Gentlemen, but a very plain man, and had no great learning beſtowed on me, yet have I the public good at heart as well as my betters, and I know enough to perceive that your ſcheme is well calculated for promoting agriculture, and what depends on it; and, if properly ſupported, it will, I dare ſay, be of great uſe.

The ſupport you want conſiſts of letters from the ſeveral parts of the kingdom, as that alone can enable you to purſue your laudable plan.

On this principle I now write to you, knowing that it is much preferable for you to receive twenty letters improper for your work, than fail of receiving one which would anſwer your purpoſe. If you give my thoughts a place in one of your Numbers, I ſhall eſteem it a favour; if you decline it, I ſhall not tax you with partiality, becauſe you know me not.

The pieces contained in your Number already publiſhed are valuable, and you are certainly much obliged to the gentlemen who ventured to freight your bark with their thoughts in her firſt voyage.

I was born, and have lived many years, in the neighbourhood of where I now occupy, as well as own, land; moſt of which time I have employed in endeavouring to make myſelf maſter of the ſeveral branches of huſbandry.

I may venture to ſay I have in ſome meaſure ſucceeded, as I have acquired by my induſtry a ſufficiency to ſupport, and provide for, a numerous family.

We run greatly upon malting in this country, ſo that there is ſcarcely a farm but what has a few floors that either are, or might be, applied to that purpoſe. I have myſelf made a great deal in my time; but it was many years before I knew in what manner to make a profitable uſe of my malt-duſt; that is, the duſt, tails, *&c.* which fall off in the ſcreening.

I uſed very frequently to mix it with the kiln-duſt, and lay it on my land; but I found it a very hot manure, though in ſome caſes of very great ſervice: of this, experience, the beſt of miſtreſſes, has often convinced me.

It was, I ſay, many years before I thought of giving my malt-duſt to my cows*; but when I did, I found it anſwer to

* Malt-duſt is very good food, when mixed with an equal quantity of oats, for horſes; they thrive well on it; but of itſelf it is rather too hot for them. In Eſſex, ſeveral farmers give malt-duſt to their cows, and find it anſwer well; and if we are well informed, the advantages derived from this practice are not exaggerated by our correſpondent. But care muſt be taken to diſtinguiſh the genuine malt-duſt from that which is called kiln-duſt, which falls through the gratings from the malt whilſt it is drying. N.

to admiration; it made them give much more milk, the milk was of a better quality, had no bad taſte, and made excellent butter.

My way is to give each cow half a peck in the morning when ſhe gives her firſt meal, and as much when ſhe is milked in the afternoon: for this purpoſe I every year, at a cheap rate, purchaſe a conſiderable quantity; for my own malt-houſe does not yield enough to ſupply my number of cows, and very few of my neighbours, as far as I can underſtand, apply it to this uſe.

My cows look ſleeker, and are in better order, than ever they were before they were thus managed; and when they fall off their milk, they fatten kindlier than cows in general do.

The ſucceſs I met with, when I firſt tried this method, induced me to continue the practice; and it is this ſucceſs which now urges me to communicate my knowledge for the benefit of ſociety.

Miſtake me not, Gentlemen, I do not pretend to have diſcovered this matter; indeed I did not; on the contrary, it was communicated to me by a relation who lives in Hertfordſhire, who had practiſed it with ſucceſs for ſome years.

All the merit I have, is in not concealing it when it was imparted to me: I have told it to many, and many have reaped advantage from practiſing it; yet all the information I have been able to give has not brought the practice in ſufficient eſtimation.

If it ſtands recommended in your work, it will doubtleſs ſoon be as generally practiſed as known *: whoever tries it will find encouragement enough to continue the uſe, as there is ſcarcely any thing I know which will better anſwer the purpoſe of making cows give a large quantity of good milk: one reaſon to be aſſigned for it is, that it makes them drink a great deal; and it is, beſides, very nouriſhing food.

* We cannot enough commend our correſpondent's public ſpirit, and could wiſh every one would do the like; there would then be no reaſon to complain, as he does, of the almoſt invincible obſtinacy of many Engliſh farmers. O.

That husbandry has improved only by slow degrees, may in a great measure be attributed to the farmers in general being so very tenacious of what little knowledge they have; their souls are too narrow to permit them to impart to others that knowledge which proves of any advantage to themselves: self-interest is the continual obstacle; and though, God knows, their communications would, for the most part, be little important, what they do know they will not impart.

More than this, such is the opinion they have of their own methods of practice, that all the persuasions in the world will scarcely induce them to make the least alteration in them. *They attempt not*, say they, *to be wiser than their forefathers: had not the ordinary methods been found to answer every purpose required of them, they would doubtless long since have undergone a change, and this business would not have been left to us.*

This is the method of reasoning among the general run of farmers; but from this beaten path I have boldly varied, and to this do I attribute the success I have had in life; for, to own the plain and honest truth, I scarcely ever varied my methods of farming from those commonly in use without singularly profiting by it*; in so little perfection is husbandry, on which the happiness and well-being of the nation so much depends. I am, with great respect,

Oct. 12, 1763. GENTLEMEN,

Near Abingdon, Berks. Your most obedient servant,

To Mr. Newbery, *Bookseller, in* London. A FARMER.

* We should be much obliged to this gentleman for his future favours: we cannot but think they will be worthy the attention of the public, not only as he appears to have had many years experience in husbandry, but also as he seems to be blessed with the talent of reflection on causes and consequences: without this talent it is in vain for a man to attempt being skilled in the several branches of agriculture. R.

NUMBER XXIV.

A Letter to the Editors, on an improved Method of breeding Seed-Wheat.

GENTLEMEN,

ALMOST every landholder has ſome methods of farming his land peculiar to himſelf: this, Gentlemen, is my caſe; and as I know of nobody that follows my practice, but myſelf, my intention is, with your aſſiſtance, to lay it before the public; that, if it is approved of, it may come into more general practice; but if, on the contrary, no advantage is thought to reſult from it, I ſhould be glad to ſee ſome reaſonings on the ſubject by ſome of your ingenious correſpondents.

My reaſonings are but ſhort on any ſubject: if any thing ſeems in my mind probable to ſucceed, I try it, and govern my future operations by the ſucceſs of that, and a few more experiments in the ſame affair.

I join with many others in opinion, that it is beſt every year to change one's ſeed-wheat *, and this has been my conſtant practice: I have had many a weary ride to get ſeed that would pleaſe me, for I am, and always have been, very difficult in this matter.

I

* It is certainly adviſeable frequently to change the ſeed: to do it every year is being perhaps over ſcrupulous, though it is erring on the right ſide. To aſſert that this change of ſeed is proper, is very eaſy, becauſe it is warranted by conſtant experience; but it is not ſo eaſy to aſſign a reaſon why it ſhould be neceſſary: to ſay the land is tired of bearing repeatedly the ſame crop, is in fact ſaying juſt nothing, unleſs we ſuppoſe that different crops require different juices to nouriſh them; but whether they do, or do not, is a point not yet ſettled among the naturaliſts. We ſhould, however, incline to think that all plants require and ſubſiſt by the ſame nutritive juice, and that the difference in the properties of plants is cauſed by the very great difference there is in their organization; but we are far from impoſing our opinion on others, neither would it be proper here to enter more largely into a diſquiſition on the ſubject. T.

I have near two hundred acres of land in conſtant tillage: theſe I divide into three portions, ſo that I have every year about ſixty acres in wheat, ſixty more in barley and oats; and the remainder are either fallow, or in beans, peas, or turnips, &c.

When I firſt came into my farm, I expended annually, of ſeed-wheat, thirty quarters; for, after the example of my neighbours, I allowed four * buſhels of ſeed for every acre I ſowed.

Theſe thirty quarters often coſt me above ſeventy pounds; and God knows I could ſometimes but little ſpare ſo much money, after the great annual expence of getting in my harveſt.

Some part of my land differs greatly in its nature from the other: near half my farm is a ſtiff deep clay; what bottom it has I know not, as I never could find it in digging my ditches, &c. the other half is a bed of light ſandy loam, with a gravelly hard bottom.

This difference in the ſoil of my farm is on many accounts a great advantage; particularly, my wheat does not all ripen at the ſame time; I have generally nearly got in that growing on my gravelly land, before that on my clay is fit to cut; and I can beſides plow in all weathers, froſt excepted.

But, Gentlemen, not to digreſs too much, I took it into my head that, with proper care, I could breed for myſelf, on my own land, as good ſeed-wheat as any I could buy, if not better; and I determined within myſelf to make the experiment.

Before I made this experiment, I had reduced the quantity of ſeed I uſed on each acre, to three buſhels, which was a great ſaving to me. I had ſtill occaſion for above twenty quarters.

My firſt ſtep was to ſelect ten acres of the beſt land I had; five from the heavy, and as many from the light part of my farm: this land was by nature rich and good; it lay on

* This is a buſhel more than is ſown by moſt farmers, even in the common way of huſbandry. O.

on the gentle ſouthern declivity of a hill, and required very little manure; it lay in two little detached fields, at ſome diſtance one from the other.

When I had prepared this land by a winter and ſummer fallowing, in which time the clayey part was plowed ſeven * times, and the light land five times, I had both fields ſown with ſome of the beſt wheat I could procure; that for the heavy land I got from Hertfordſhire, the other from a particular friend who holds a farm in Cambridgeſhire.

When the ſeaſon for ſowing approached, I was mightily pleaſed with the appearance of my two little plots; for they reſembled the beſt-kept gardens, not a weed to be ſeen, and the earth as fine as garden-mould.

On this occaſion I did not brine my ſeed, but had it put into a large tub: ſome water was then poured on it, and I made a ſtout labourer, with a ſtiff half-worn birchen-broom, ſtir it very briſkly about for near half an hour: this I imagined would waſh off the ſmut, if any there happened to be: the light ſeeds, which were very few, were ſkimmed off.

I let the wheat afterwards lie three hours ſoking, when my man again ſtirred it briſkly with the ſame broom, and immediately poured the water off.

Whilſt yet wet, the ſeed was ſprinkled in the uſual manner with ſlaked lime, in order to prepare it for ſowing.

My reaſon for not brining it † was, that I thought it would bring it too forward; and I rather choſe to ſow it early,

* It cannot be too often inculcated, that it is ſcarcely poſſible to plow lands too much; the only danger is in the expence that is incurred: yet it muſt be conſidered, that though land cannot have too much tillage, this tillage may be given at improper ſeaſons, ſo as to do more hurt than good; as, for example, clayey lands ſhould never, if there is any poſſibility of avoiding it, be plowed in wet weather, particularly after Chriſtmas; for if it ſhould riſe in clods in autumn, the winter froſts will mellow and reduce it; but if it is plowed wet in the ſpring, it will be rough the whole ſummer. It ſhould be remembered that the intention of tillage is to reduce the earth into very ſmall particles: every thing therefore that conduces to this deſirable end muſt of courſe be highly uſeful. N.

† It is not always neceſſary to brine wheat before ſowing: waſhing it well anſwers the purpoſe of preſerving it from ſmut,

early, which is, I know, in general, a very good practice.

In ſowing this land, I, in ſome meaſure, followed Mr. Tull's directions; that is, I ſowed my wheat in rows with large intervals, in the following manner.

I had a furrow opened about a rod from the hedge: in this furrow ſome ſeed was by a careful hand very thinly ſcattered, not ſowed in the common way with a fling of the arm.

It took up time; ſo I had two ſowers to each plow. When the plowman had drawn the firſt furrow, he then opened another, at about ten feet diſtance from the firſt in the land; and ſeed was in the ſame manner thinly ſcattered in this alſo: after this, he returned to the firſt furrow, and drawing another cloſe to it covered the ſeed; the ſame thing he did by the ſecond furrow: he afterwards went two bouts without any ſeed being ſown in the furrows; but the third bout, ſeed was thinly ſcattered, as before, to form the ſecond row of corn in each bed: another bout was made to cover the ſeed when the two beds were finiſhed, the middle of the interval being left unplowed.

In this manner * both my little fields were ſown, in double rows with intervals about five or ſix feet wide betwixt the beds, and the rows about two feet aſunder.

The

by removing the infectious powder which is apt to lodge at the rough germ of the ſeed. Brining is moſt neceſſary at a late ſowing, as it will then bring the corn forward; but it is always beſt omitted, unleſs the land is in fine tilth: if it has not been well plowed, the wheat, which had made a quick progreſs bythe aſſiſtance of the ſaline particles it had imbibed in the brining, receives a fatal check, not finding the circumjacent earth in a condition to ſecond the operations of the ſalt. When any good is expected from brining wheat, the ſeed ſhould be left from twelve to twenty-four hours in the ſteep, according to its quality, as it is harder or ſofter. If this is not done, the brine will be of little more ſervice than plain water. N.

* Our correſpondent's method was but a faint imitation of that recommended by Mr. Tull; yet, all things conſidered, it was perhaps better calculated for ſucceſs. The inſtruments made uſe of were ſuch as the labourers well knew how to handle: they were not much put out of their way; conſequently they were

The corn came up very well, and preſerved a good wholeſome appearance all the winter.

Early in the ſpring, that is, in the month of February, I made a careful man ſow the ſpaces betwixt the rows of corn on the heavy land with wood-aſhes, and on the light land with ſoot *: theſe were both ſoon waſhed in by the rain, and the effects were ſpeedily to be ſeen in the new-aſſumed vigour of the crops, and this vigour continued till the corn was ripe.

As ſoon as any weeds appeared, the intervals which were left unplowed at ſeed-time were turned up, and the ſpaces betwixt the rows diligently hand-hoed: this hand-hoeing was ſeveral times repeated, to keep the crop quite clear from weeds: the intervals had alſo ſeveral other ſtirrings; but this work was chiefly done with a very light plow without an earth-board in the heavy land, and without either earth-board or coulter in the other little field.

Every thing came very well forward; and when the wheat began to ſpindle, I had the outſides of the rows well

were more ready in their obedience. Had the drill-plow been uſed, there would doubtleſs in the light land have been a greater regularity; but it is a queſtion, whether in the heavy land it would have worked at all. The advantages to be derived from the full and entire practice of the new huſbandry are not yet known; neither perhaps would it be proper to fall into it too ſuddenly. We would recommend to our readers, at leaſt ſuch of them as practiſe huſbandry, to allow their plants of corn much more ſpace to grow in, and not be afraid of the additional expence of hoeing and weeding, which will be well paid for at harveſt. If this method ſucceeds with them, of which there cannot be the leaſt doubt, as it has been ſeveral times tried, they may then attempt ſowing in rows with intervals, but ſtill making uſe of the common implements. There may not probably be occaſion for their making any farther alteration in their practice: yet they may incline to try the drill; if this is the caſe, let it be on light land, and on a ſmall plot; if it ſucceeds, they may enlarge their plan; if it fails, the loſs will not be great, and the reſult of their experiments will be of uſe to others, if they have public ſpirit enough to communicate their obſervations. N.

* Both wood-aſhes and ſoot ſown in ſpring on corn land are excellent manure: about twenty buſhels of either is enough for an acre; even half that quantity will be of very material ſervice. N.

earthed-up with a plow, and the inſides with a hand-hoe: the inſides were done firſt *.

At harveſt the fields made a noble appearance, a fine well-broke earth ſtriped with rows of healthy wheat.

The cutting this wheat was very eaſily performed, it ſtood ſo ready to the reapers hands; and when it was houſed and thraſhed, it yielded me about four quarters on an acre, one with another, the firſt year, though I have ſince had ſometimes more, ſometimes a little leſs.

My ten acres then yield me about forty quarters; and I had occaſion for only about twenty-two to ſow my common wheat-lands: I therefore took only the firſt and prime part of this crop, getting the ſheaves very lightly thraſhed; what remained made excellent bread-corn.

I never ſaw finer ſeed-wheat than mine was this year: my heavy lands I ſowed with the ſeed produced by the light field, and my light lands with that produced by the heavy field.

As ſoon as I had got in this ſelect crop, I got the intervals in order for ſowing with a ſecond crop, in moſt reſpects continuing the practice of the year before: I had the like ſucceſs, and might, perhaps, with equal advantage, have continued cropping the fields every year in the ſame manner: but, not to depend too much on Mr. Tull, my next crop was a full crop of barley on them, which ſucceeded well; and I ſelected two other plots of ground, of equal goodneſs, for my ſeed-corn huſbandry, as I call it †.

In this manner I have now for ſeveral years paſt managed, growing my own ſeed; and, if any thing, my crops have

* The practice of earthing-up plants, juſt before they ſeed, is much to be commended: it furniſhes the roots with a freſh ſupply of food, and gives an aſtoniſhing vigour to the plants. In wheat it fills the ear, and plumps the grain, in ſome meaſure ſupplying a deficiency of rain before harveſt: it alſo often prevents the corn from being lodged. This is ſcarcely practicable but in the new way of huſbandry. O.

† Our correſpondent was quite right not to hazard ſowing the third crop of wheat on the ſame land, particularly as he ſays he had other fields as proper for his purpoſe: we do not diſpute, but that the ſame land may, in the new way of huſbandry, if properly aſſiſted

have ſince encreaſed: but I have again reduced the quantity from three to two buſhels of ſeed, for each acre of my wheat-land in common; that is, ſuch as I ſow in the ordinary way: on ſome of my rich, ſtrong land, I don't uſe above ſix pecks *, and find it anſwer very well.

I could like to extend this new huſbandry, or this imitation at leaſt of the new huſbandry, over all my lands that are in tillage: but in my method of practiſing, the expence would be too great: my ſowers are well paid; I have enough to do to make my plowmen go out of their ordinary way; and it coſts me a great deal hoeing: yet all this I do not grudge to procure good ſeed.

By introducing the drill-plow and the horſe-hoe, I could ſave a great deal of labour on my light lands; and I may probably ſome time or other attempt it: but, at the ſame time, I am very ſenſible, I ſhall find great difficulty in getting men that will even try to do the work with theſe inſtruments. The common labourers in huſbandry hate novelty: they purſue, without murmuring, the old beaten track; but put them out of it, and thought will become neceſſary: the fact is, they imagine it a very great hardſhip to be obliged to work and think too, and all for the ſame money.

Without great reſolution, and ſome kind of authority, a farmer will be obliged to let them even dig a ditch their own way: innovation they like not in any ſhape, often making uſe of the expreſſion, that they are too old to learn.

aſſiſted by manures, bear wheat for many ſucceſſive years; yet is there no neceſſity for making this a practice, eſpecially as there is always ſuch a great demand for barley and oats; and any ſoil, that is proper for wheat, will produce barley and oats to advantage, and may afterwards without hazard be put in wheat again. The trying land in this manner is rather more a matter of curioſity than any thing elſe. Mr. Tull aſſerts, that in his method, without the aſſiſtance of any manure, land may be profitably ſown with wheat every year: but this is not our opinion, whatever may be done in this caſe with manure properly and ſeaſonably applied. N.

* That quantity, and even leſs of good ſound tried ſeed, is enough, with care, for an acre of any kind of land: more is rather pernicious than otherwiſe, beſides the loſs of ſeed; no inconſiderable article in many farms, as our correſpondent plainly by experience proves. R.

This, to a man who is very much diſpoſed to lend a helping hand towards the improvement of agriculture, is a mortifying circumſtance: there is ſcarcely any thing ſo difficult as to make an obſtinate man uſeful: if, by dint of authority, you oblige him to go out of his way, he will rather contribute to the loſs of your crop, than not endeavour to convince you that he is in the right. I have often, to my ſorrow, felt the truth of this obſervation *.

Several reaſons, though I deal not much in them, may be aſſigned for the ſeed-wheat, I raiſe in the above-deſcribed manner, being ſo good.

In the firſt place, I ſow it on land that has not taſted any dung † for ſome years, but is, in its own nature, rich and good: to this practice I aſcribe a great deal of its goodneſs. In the next place, as the corn does not ſtand too thick, it enjoys all the benefit it can receive from the ſun and air: by this means it attains a perfect maturity, and is certainly improved both in bulk and quality.

The ſlight ſpring-dreſſing I give it, of ſoot or aſhes, is of very great ſervice: it warms the roots and brings the corn forward; it looſens the earth, and either itſelf gives nouriſhment to the plants ‡, or, at leaſt, puts the earth in a diſpoſition to afford it.

Not

* Our correſpondent's reaſonings on this head are very juſt: he ſeems to ſpeak feelingly; and we are ſorry to ſay, that many others lie under the difficulties he mentions. What chiefly prevents a reformation among our labourers in huſbandry, is, the maſters in general being but little more enlightened. R.

† Plants that grow on ſweet undunged land are much to be preferred to ſuch as are raiſed on the rich manured ſoils, ſuch as we find near great towns. For this reaſon, pulſe and garden-ſtuff, growing in a little hamlet, is always ſweeter than where dung is plentiful. About Paris the gardeners are often obliged to lay down their grounds in graſs to abate their rankneſs; for in a certain number of years the land, by being continually mended, grows ſo rich that nothing of garden-ſtuff will thrive on it, but ſickens with a ſurfeit of unprepared food, rots at the root, and dies. O.

‡ This dreſſing probably does both; for the ſalts contained in the ſoot and aſhes, being diſſolved by the moiſture of the earth, not only become a proper food for the plants, but raiſe a fermentation, and diſpoſe the earth in its turn to yield its ſalts or nutritive juices. H.

Not a little is to be attributed to the frequent hoeing betwixt the rows and the ſtirrings of the intervals; and I find one very particular and great advantage reſult from it, which is, that it is an excellent means of clearing my land of weeds; for they no ſooner attain a part of their growth, but they are deſtroyed long before they ſeed.

Farmers in general think their fields cannot in the ſpring be too full of wheat-plants: the ground ſeems covered with verdure, and the blades are, as it were, crouded for want of room: when the weeds begin to get up, they ſend in a parcel of men and women with weeding-hooks, not letting a hoe come near the land to cut them up: they are ſadly afraid they ſhould not have plants enough at harveſt; whereas, if they were to meaſure and mark off a rod ſquare of land in February, and count the plants growing on it then, and afterwards count them in the beginning of Auguſt, it would almoſt always be found, that four parts in five of them had periſhed in the intermediate months, and that what remained were, by far, too much crouded ſtill, and had each but few ſtalks.

I never weed my corn of late years; for as I allow only two buſhels of ſeed, and often leſs, to an acre, the plants come up thin; and there is of courſe room for a moderate-ſized hoe, which is the inſtrument I clean my land with *: and ſo far from being fearful of having my crop injured by this means, I order the workmen, where the plants ſtand too cloſe, to cut them up without mercy, as they would do the moſt pernicious weeds: if there happens by any accident to be a vacant ſpot, they eaſily remove ſome plants to it, with earth about their roots, by the help of their hoe.

By this management, I, in ſome meaſure, reap the benefit of the advantages promiſed by the new huſbandry; though I have not ſuch opportunities of ſo often giving the plants a freſh ſupply of nouriſhment, nor of earthing them up when the

* We cannot enough recommend our correſpondent's practice with regard to keeping his crops clean: the hoe is certainly the moſt proper inſtrument; and, as he obſerves, there is no danger if many of the wheat-plants are cut up in the work: the great fault of the preſent race of farmers, is ſcattering their ſeed too thick on half-tilled land. T.

the grain is forming in the ear; for, after the corn has put forth its ſtalks to any conſiderable length, it would not be ſo proper to ſend in the hoers: but all the loſs is the want of earthing-up the plants; for the weeds will, before this time, be pretty well got under, and few of them will be able to ripen their ſeeds before harveſt, when they will of courſe be deſtroyed by turning in the ſtubble, which I always do as ſoon as poſſible; though many of my neighbours let their ſtubbles lie rough all the winter, for the ſake of feeding a few ſcore of ewes.

In the beginning of my letter I obſerved, that almoſt every farmer has methods peculiar to himſelf; and they are, for the moſt part, ſuch as were practiſed by their fathers, grandfathers, &c. whom they ſucceeded in the culture of their farms.

My methods, as you muſt now be ſenſible, differ from moſt of thoſe uſed by other occupiers of land; and if I cannot ſo well defend them by arguments, an experience of ſeveral years has convinced me that I ought ſtill to perſiſt in the practice of them: they have anſwered all the ends I could wiſh from them; what could I deſire more?

I am enabled to raiſe all my own ſeed without the trouble of procuring it from a great diſtance, at a large expence, and with a deal of trouble.

My crops are to the full as good as ever they were, and I uſe leſs ſeed by above one half: my manure goes a great deal farther than it uſed to do, becauſe I beſtow more plowing and other tillage on my land; and I am not ſo much peſtered as I formerly was with weeds, for they now very ſeldom are ſuffered to ſeed on my land.

Of this laſt evil, I mean that of weeds, I have not, however, yet got quite rid; for ſuch of my fields as border on my neighbours lands are ſtill often infeſted: ſome of theſe ſame neighbours, I have ſeveral times mentioned, are but ſlovenly farmers, and the weeds which have winged or downy ſeeds, are conſtantly wafted by the wind from their land to mine *; ſo that I, in ſome meaſure, am puniſhed for their

* This evil and inconvenience, complained of by our correſpondent, is of much greater conſequence than is in general imagined: we have often ſeen inſtances of great diſappointments by

their neglects: thiſtles are this way particularly troubleſome, as the ſeeds of them will ſometimes be carried a very conſiderable way by the wind.

I have very little more to ſay at this time, except that I never thraſh the ſheaves that are to ſupply me with ſeed-corn, till juſt when I want to make uſe of it. I have a notion, that the ſeed keeps better in the covering nature has given it, I mean the chaff, than it would do without it; and I am pretty certain it ſprouts ſooner in the ground, the huſk or bran of the grain being preſerved in a tenderer and more yielding ſtate, than it would be were it expoſed to the open air *.

I ſhould be glad if any of your correſpondents would inform me, at what diſtance wheat-plants ſhould ſtand from each other in a good ſoil, ſo as that their roots ſhould have ſpace ſufficient to extend, that their ſtalks ſhould enjoy all poſſible benefit from the air and ſun, and that yet the land ſhould bear the largeſt crop it was capable of †.

I have not yet been able to come to any tolerable certainty in this important point in huſbandry: I have thought much about it, but as yet to no great purpoſe. Was this point once fixed, we farmers ſhould go upon a much greater certainty, both with reſpect to the quantity of the ſeed, and the reaſonable expectation we might form of the crop.

I wiſh you, Gentlemen, great ſucceſs in your laudable undertaking: and, indeed, I doubt not but you will meet with it, and have plenty of correſpondents and ſubſcribers.

GENTLEMEN,

Oct. 4, 1763. Your moſt obedient humble ſervant,

To Mr. Newbery, *in* St. Paul's Church-Yard, *Bookſeller, for the Gentlemen Editors.*

AN ESSEX FARMER.

by this means, particularly when the lands, in the neighbourhood of a clean farm, are infeſted with thiſtles, the ſeeds of which, as he juſtly obſerves, are carried a conſiderable way by a briſk gale of wind. It is a great pity farmers in general are ſuch ſlovens in the land; their hedge-rows often have the appearance of a nurſery of weeds; and it is ſometimes difficult to determine, whether poppies or wheat-plants are the crop. O.

* This is, perhaps, being more nice than is neceſſary: if it is, however, an error, it is on the right ſide; and we could wiſh every farmer was as accurate in his practice and obſervations. E.

† We join with our correſpondent, in requeſting the ſentiments of ſome of the ingenious practitioners in agriculture on this ſubject. A.

NUM-

NUMBER XXV.

A Letter to the Editors, recommending a new Manufacture to be eſtabliſhed in England.

GENTLEMEN,

WHatever additional employ we can find for the poorer ſort of people, is, in fact, adding ſo much annually to the wealth of the kingdom; eſpecially when the raw commodity to be manufactured is naturally produced, and in plenty, either in England, or in any of her American colonies.

This, Gentlemen, is my motive for now writing to you. I would propoſe the eſtabliſhment of a manufacture, which has been hitherto overlooked or unattended to, and which would yet be of great utility.

In our iſland of Jamaica there is great plenty of the plant which is called *apocynum*, or dog's-bane. To the pod which contains the ſeed of this plant is faſtened a plume of cottony down: ſome of the pods are very large, and of courſe produce a greater quantity, which is eaſily collected.

This plant grows like a common weed, in the Weſt-Indies, without cultivation or care: the down is ſoft, light, and warm, and might be applied to many uſes *; but particularly we might make of it counterpanes for beds, which would infinitely excell the white cotton tufted counterpanes now ſo much in vogue.

This is no conjecture; for counterpanes are very frequently made of this down in the ſouth of France, where they are very much eſteemed.

This

* A premium is already publiſhed for encouraging the manufacturing of the ſeveral parts of the fruit-bearing plantane-tree. The contents of this letter may therefore probably be taken under the ſociety's conſideration, when the ſubjects for the next year's premiums are determined. We return our correſpondent many thanks for the trouble he has taken in giving us the hint. A.

This is certainly an object well worth our attention; for, as our own West-India Islands do not supply us with a sufficient quantity of cotton for the support of our manufactories, this down would, in some measure, supply the deficiency, and be, in many cases, an excellent substitute for it.

Several sorts of the *apocynum* thrive well and ripen their seeds in the south of France: they call this down there *delawad*; and many plantations are made and kept in good order for the sake of it.

It is chiefly, if not entirely, in waste and uncultivated lands, that this plant is found in Jamaica; for being a troublesome weed, which propagates itself very fast, they endeavour to banish it from their sugar-grounds: on this account it might be imported raw into England at a very cheap rate; and of course the manufacturing of it would better answer to the undertakers *.

Many kinds of the *apocynum* are carefully preserved in the *British Museum*, where the pods, with the cottony down, may, by the curious, be seen.

Nothing can be more proper than this down to make bed-coverlids for gouty people; it is so inconceivably light, and yet so warm: it would make excellent stuffing for pillows and cushions of chairs, and warm stockings and gloves; and even night-caps for sick people, or such as are of a tender and chilly constitution, might soon be made of it.

I shall not take up your time in enumerating all the advantages which may be derived from the manufacturing of this down: it is, as I said before, much used in some parts of France, and might doubtless be greatly improved in the hands of English artists.

Can the society of arts do better than to propose a premium for the best counterpane, which shall be made of it within two years?

* In all manufactures the cheapness of the raw commodity is a matter of great moment; and this down of the *apocynum* seems to be a cheaper material than cotton; of course the articles that are made from it must be in proportion cheap. If the counterpanes, *&c.* made of this down, excel in quality those made of cotton, they will necessarily be had in higher estimation, and may in time become an important article in commerce. N.

Some encouragement is neceſſary; and many matters are daily encouraged at a large expence, which do not promiſe to be of half the uſe this might. I am,

GENTLEMEN,

Oct. 7, 1763. Your humble ſervant,

A JAMAICA PLANTER.

To the Care of Mr. Newbery, *for the Editors of the Select Papers on Agriculture and Commerce.*

NUMBER XXVI.

A Letter to the Editors, from a Member of the Society of Arts, on an improved Method of raiſing Cucumbers, either for Eating or for Seed.

GENTLEMEN,

EVERY plant, which is not a native of a country, is apt, without the greateſt care imaginable, to degenerate, after having been for ſome years cultivated with tolerable ſucceſs. For this reaſon it is moſt advantageous, frequently to procure freſh ſeed from the country of which the plant is a native.

Many inſtances might be given of the truth of this aſſertion; but, indeed, it is ſo well known, that it is almoſt unneceſſary: I ſhall, however, mention flax. This plant has been long cultivated, as well in the Britiſh Iſlands as in the United Provinces and Flanders, for the purpoſe of making linen; yet, with all the care of the planters, if a freſh ſtock of ſeed is not almoſt annually procured from the north, as from Riga, *&c.* it is well known to degenerate greatly.

This I take to be the caſe with the cucumbers, which are at preſent raiſed in moſt of our gardens; for they are certainly no ways to be compared, either with thoſe which were, at their being firſt brought over, cultivated here, or with thoſe we now meet with in Spain, Portugal, Italy, or the ſouth of France.

Such as we find, either in the markets, or at the tables of our gentry, are in general a raw, crude, watery fruit, compoſed of a collection of indigeſted ſap, without firmneſs

firmneſs in the fleſh, unwholeſome, and abſolutely ſo much without flavour, as to have no good taſte whatever.

Such fruit may paſs well enough with people who think coolneſs the only quality to be ſought for in a cucumber: but to ſuch as have a more delicate taſte, or who have eat cucumbers in any of the countries above mentioned, they are almoſt deteſtable.

This was for ſome years unfortunately my caſe; for I was a long time deſtitute of a fine fruit. I could not, indeed, think of eating the miſerable ſtuff which was often laid before me.

As I am naturally fond of cucumbers in hot weather, it is no wonder I ſhould form many ſchemes of raiſing them good in England: but all my experiments failed, till in the year 1750 I accompliſhed my wiſhed-for purpoſe. I then began to eat cucumbers with ſatisfaction again, as the fruit I raiſed was large, firm, thick in the fleſh, and of a delicate and genuine flavour: in fact, they were nearly as good as any I had met with in Italy.

The method by which I gained this grand point, I ſhall now deſcribe, as, perhaps, others beſides myſelf may be glad to practiſe it, eſpecially as it is attended with no great expence.

I am not fond of cucumbers till the warm ſummer's weather comes on; and on that account alſo my method is well adapted to my taſte, though they might be procured much ſooner by means of forcing-frames: but this would be attended with conſiderable expence, unleſs it was done in gardens where they were already provided with frames for forcing cherries, *&c.* in theſe the cucumbers would thrive very well in the ſpaces betwixt the trees, and that without injuring the fruit.

But to proceed: when I firſt formed an idea of this method, I procured ſome of the beſt ſeed of the common prickly cucumber I could get: from this, in the ſpring of the year 1750, I raiſed ſome plants on a moderate hot-bed, not hurrying them too much in their growth.

In May, when the danger of froſt was almoſt over, I familiariſed the plants by degrees to the air, and towards

the latter end of the month planted them in the open ground againſt a ſouth wall.

In this ſituation they throve apace, and as faſt as they put forth their runners, I nailed them gently up againſt the wall. They did not ſend forth many bloſſoms till they had run up a conſiderable height, at leaſt five feet; after which the fruit began to ſhew itſelf.

I did not give the plants too much water, and this I have ſince found a neceſſary precaution*.

The fruit encreaſed in ſize daily, was of a fine green colour, and differed greatly from that of ſome other plants raiſed from the ſame ſeed, but planted in the ordinary way; the runners being ſuffered to trail on the ground.

When I gathered my firſt cucumber, I was exceedingly delighted at its appearance; for it was long, thin in proportion to its length, of a beautiful green, not too deep, with a whitiſh ſummit.

When I cut it, I found the fleſh thick and firm, but few ſeeds, and thoſe very ſmall; and its flavour was inexpreſſibly delicious, eſpecially to me, who had been ſo long without eating any of that favourite fruit.

It was the ſame thing with all I afterwards gathered from theſe vines.

I was not, however, ſo much taken up with the indulgence of my palate, for the preſent, as to neglect providing for a future ſupply of good fruit: accordingly, I pitched upon ſome of the fineſt cucumbers, not at too great a diſtance from the roots, and left them on the vines to perfect their ſeed.

In this manner have I raiſed cucumbers for my own eating ever ſince, and have the good fortune to find, that inſtead

* Our correſpondent's experiment was of an uncommon nature; yet we can readily give credit to what he aſſerts, as we know that the reflection of the ſun-beams is of great advantage to this fruit, having experienced, that laying a cucumber or melon bed with tiles, is of particular ſervice, improving the fruit, and giving it a finer flavour. It is, therefore, reaſonable to think, that training the vines againſt a wall would ſtill be of greater ſervice. N.

inſtead of degenerating, they have improved ſo much as not to be known for the common cucumber.

My neighbours, in the country, are glad when I have any ſeed to ſpare for them, and always find their cucumbers, that year, much the better for uſing it, though they do not grow ſo large as mine, neither have they ſo delicate a flavour, unleſs nailed up againſt a wall.

I am very ſenſible this method cannot, with any degree of convenience, be brought into general practice; yet, in every garden, a few plants may be ſo trained to prevent the ſeed from degenerating*; eſpecially as, if the ſeed only is attended to, one or two plants, ſo raiſed, would ſupply a ſufficient quantity for a large garden.

I muſt own, that in my method the plants do not bear ſo great a number of cucumbers as in the common way; but then they are, without compariſon, larger, and of an exquiſite flavour.

I have found the benefit of this practice; on which account I recommend it to the curious.

I am, GENTLEMEN,

London, Your humble ſervant, and

Oct. 6, 1763. A well-wiſher to your work,

A MEMBER of the SOCIETY.

To Meſſ. Davis *and* Reymers, *for the Editors of the* Muſeum Ruſticum et Commerciale.

NUMBER XXVII.

For the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

I Perceive you have given the *Leading Queſtions* I ſent you ſome time ago, a place in your firſt publication. I am obliged to you for your complaiſance, and am moreover

* This method, as our correſpondent juſtly obſerves, cannot well be brought into general practice; but we join with him in recommending it for ſuch vines as are to bear the cucumbers for ſeed: it ſeems a probable way of preventing it from degenerating, and would not be any great expence, as a ſmall extent of wall would ſerve to ſupply with ſeed a large tract of ground. O.

over to thank you for your genteel compliment, contained in a note under page 55. It is this has induced me to ſend you ſome more *Queſtions*, which will, I hope, be as well adapted to your plan as the laſt ſet were.

I have only to tell you, that I like what I have ſeen of your work, and am

Oct. 14, 1763. Your humble ſervant,

N. K.

LEADING QUESTIONS *in* NATURAL HISTORY *and* AGRICULTURE.

Of the Nature of the Soil, and the internal Produce of the Earth.

1. Of what nature, in the ſeveral parts of theſe iſlands, are the beds of earth immediately under the ſurface?

2. Of what nature are the beds of the rocks, in what direction do they lie, and what are their varieties?

3. In what places are the ſeveral kinds of marle found, at what depth, what are their qualities, and to what uſes are they applied?

4. Where is there the greateſt plenty of gravel, for mending the roads, and curing damp cold ſoils?

5. Do we not ſometimes find under the ſurface a different kind of earth, proper to ſerve as a manure to the ſoil?

6. In what manner can the nature of land be judged of by the plants it produces, and by their vigour?

7. In what places is fullers-earth dug, and where is it moſt pure and free from extraneous mixture? Might it not be found in places little thought to produce it?

8. Where is the beſt brick and tile earth to be found, and what is its nature?

9. What are the component parts of the ſeveral kinds of cultivated and uncultivated earths, of ochres and mineral earths?

10. Of what nature is the earth in the neighbourhood of mineral ſprings and mines?

11. What is the nature of the ſeveral mineral waters and ſalt-ſprings?

12. In

12. In what parts of theſe iſlands are coal-mines found, and what is the nature of the coal in the ſeveral diſtricts?

13. What is the nature of our bogs, marſhes, and bottoms? how were they formed? whence proceeds the water with which they are filled? is it ſtagnant, and on what account? do we find turf in theſe bogs, and at what depth?

14. In what diſtricts are our mines, minerals, ſulphurs, marcaſites, &c. found? of what nature are they, and in what quantity?

15. Where are our iron mines ſituated, and what is the nature of the ore? Where are our lead and copper mines, and of what nature are they?

16. What are the properties of the ſeveral ſprings of water? To what cauſes can it be aſſigned, that certain ſprings ebb and flow periodically?

17. Might we not find marble in theſe iſlands, of a fine colour, and ſuſceptible of a good poliſh? Could we find the gypſum for making fine plaſter, lime-ſtone, free-ſtone, coarſe marble, and ſand-ſtones, what are their reſpective properties? Might not we find mill-ſtone quarries equal to thoſe called French ſtones? Where are cryſtals, ſpars, &c. to be met with?

Of the external Produce of the Earth.

1. What are the indigenous plants of theſe iſlands?

2. What plants are moſt valuable for paſtures? What noxious plants grow in our fields?

3. What plants are beſt adapted to form artificial paſtures on the ſeveral kinds of ſoil?

4. What are the weeds which are moſt troubleſome in our fields, and how may they beſt be deſtroyed?

5. Could not we grow larger quantities of woad, madder, and other plants fit for dyers uſe?

6. At what ſeaſon do the ſeveral plants, natives or inhabitants of theſe iſlands, flower, and perfect their ſeed?

7. What ſorts of ſhrubs are moſt plentiful; and what trees, or ſhrubs, will yield leaves that are moſt proper to ſerve as fodder for cattle, or to encreaſe our manures?

8. What

8. What are the ſeveral kinds of timber that are found in our woods and foreſts? Might not firs, pines, and larch-trees be to advantage planted?

9. What ſoil and ſituation is beſt adapted to each kind of timber-tree, and to what diſtempers is each kind ſubject?

Of Animals, Game, and Birds.

1. What miſchievous animals have we in theſe iſlands, and what are the beſt methods of deſtroying them?

2. Is game any where in ſuch plenty as to be any conſiderable detriment to the farmers; and how are the ſmall birds that infeſt wheat-fields, *&c.* beſt driven away?

3. What birds of paſſage frequent this country? which of them breed here, and at what ſeaſons do they come?

4. Would not the climate of ſome parts of theſe iſlands agree with ſome foreign animals, which are not miſchievous, but which produce the fine furs? Might there not be a means of importing ſuch from Canada, now it is in our poſſeſſion? Would they not do well in the north of Scotland?

5. Has the air of this country any effect on our breed of domeſtic animals?

6. What kinds of fiſh have we in our meres and rivers, and on the ſeveral coaſts? Which of them are held in the greateſt eſtimation? At what time do they reſpectively ſpawn? What fiſh have we which come in periodical ſhoals, and which are beſt for ſalting, drying, or otherwiſe preſerving to keep?

Of the moſt noxious Inſects.

1. What are the moſt noxious inſects of this country, and which are thoſe which have, as it were, ſtated returns?

2. When are they moſt numerous, and what circumſtances are moſt favourable to their encreaſe, *&c.*

3. What are the inſects which breed on particular plants, and which feed on them?

4. What

4. What kinds are noxious to corn and graſs, and what are they which chiefly attack the woods?

5. What are the beſt methods of either deſtroying them, of leſſening the damage done by them, or preventing them from injuring our crops?

NUMBER XXVIII.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

PERMIT me to contribute towards the embelliſhment of a work which, I firmly believe, will be of great uſe to the public. I do not, indeed, remember to have ſeen any thing better calculated to anſwer the ends propoſed, than your *Muſeum Ruſticum*: the plan is well laid, and comprehenſive; and I doubt not but you will in a few months rank, in the number of your correſpondents, ſome of the moſt eminent men we have.

If I miſtake not, you will think the encloſed worthy of a place in your collection.

It was by mere accident I became acquainted with Monſ. de Salens: he was made a priſoner in the ſummer of the year 1760; ſoon after which, I chanced to ſee him in diſtreſs, at a town at no great diſtance from my houſe: I found him to be a man of ſenſe, and a gentleman. I ſupplied him with what little money he wanted, for bills on his agent, which have ſince been very punctually paid, and invited him to ſpend ſome time at my houſe.

I paſſed ſix very agreeable months in his company, and found him uncommonly intelligent in moſt things, particularly in what related to agriculture. This induced me, in the ſummer following, ſoon after he returned to France, to requeſt him, by letter, to give me ſome account of what he knew relative to the culture of madder, in conſequence of which I received the encloſed.

At that time I had ſome intentions of trying, myſelf, what ſucceſs I ſhould have in the culture of madder; but ſickneſs, and ſome neceſſary avocations, have hitherto

prevented me. Wiſhing you great ſucceſs in your undertaking,

I am, GENTLEMEN,

London, Oct. 3, 1763. Your humble ſervant,

To Mr. Newbery, *for the* G. T.
Muſeum Ruſticum.

A Letter from Monſ. de Salens, *a* French *Gentleman, to* G. T. *Eſq; relative to the Culture of Madder.*

SIR,

I HAVE always a great pleaſure in obliging you, and particularly ſo now, when you aſk my ſentiments relative to the culture of madder. I have raiſed it myſelf, though not in any very large quantities, in one year; yet enough to be ſome judge of the different methods of managing it.

Madder-roots are often ſold in France without being reduced to powder, and the dyers are then very careful in the choice of it. They in general prefer new roots, as they are thought to yield moſt dye; and if they are black, rotten, ſpecked, worm-eaten, or ſcatter duſt when they are broken, they are to be rejected.

Theſe faults the eye will diſcover; but they ſhould alſo be examined by the ſmell; for, if they are the leaſt inclined to be muſty, their value will be greatly reduced.

Many practiſe great frauds by moiſtening the roots juſt before they ſell them: this is doubly injuring the buyer; for he not only pays for more than he receives, but the whole is ſubject to be ſpoiled, if it is kept long after it has been ſo moiſtened.

Madder, to be good, ſhould have a freſh ſweet ſmell; the bark ſhould be ſmooth without cracks, and lie cloſe to the wood; for, if it is ſhrivelled and detached, it is a ſign the madder was dried by too hot a fire*: but, after all, the very beſt method of knowing good madder, is to make a ſmall trial of it on a piece of woollen. The following method is recommended by M. Hellot: I have experienced it to be good.

To

* In Zealand they ſay, that when the madder-root freſh taken out of the ground has a very bitter taſte, it loſes leſs in the drying, and ſpends beſt afterwards. O.

To dye one pound of woollen yarn, a bath muſt be made with five ounces of allum, and one ounce of red tartar, diſſolved in a ſufficient quantity of water. The yarn that is to be dyed muſt be well ſteeped in this bath. At the end of ſeven or eight days, half a pound of ground madder-root is thrown into water as hot as a man can bear his hand in without being ſcald. When the madder is well mixed with the water, the yarn is put into the bath, which is kept to the proper heat for an hour, great care being taken not to ſuffer it to boil, which would take off the brightneſs of the colour; however, at the end of the hour, the bath is made to boil, but the yarn is immediately taken out.

Monſ. du Hamel, who recommends this method of trying madder, obſerves, that as very trifling circumſtances will have an effect on the operation, the beſt way will be to make two experiments; one with the madder that is to be tried, and the other with the beſt Dutch or Smyrna madder.

Nothing can be more eaſy than this experiment: I have made it, and, with care, it always anſwered, and diſcovered the quality of the root.

You ſeem to hint, that you intend to plant a piece of ground in madder: this it was, I ſuppoſe, induced you to conſult me on the ſubject: you might have had, without doubt, much better advice than I can give you; but you could not, I am certain, have met with any one who would take more pleaſure in obeying your commands.

I ſend you the recital of the above experiment, that you may, without conſulting others, know when your crop is good, and nearly what will be its value when ſent to market, which depends entirely on the goodneſs of the dye produced from it.

I ſhall now proceed to give you my obſervations, as they occur, on the culture of this uſeful plant; but it will be without method, and chiefly ſuch as I think may be of uſe to you to put in practice in England.

I am apt to think there is hardly any kind of ſoil, but what madder will grow in; but it does not thrive alike in all: on the contrary, ſcarcely any plant ſooner diſcovers

the richneſs, or poverty of land, by the ſtate of its growth, than madder: in rich land, and a ſoil that agrees with it, it is luxuriant, and produces a great number of ſizeable, well-conditioned roots; but in a poor, dry, hungry ſoil, the plant is viſibly checked in its growth, and the roots of it are ſmall, and few in number.

Madder is a great friend to moiſture, and therefore thrives beſt on a good loam, with a clay bottom. It is very fond of freſh land juſt broke up*; but it muſt be ſo ſituated, as not to be ſubject to be overflowed, as that will deſtroy the plant.

Madder requires, to come to a ſtate of perfection, a great deal of nouriſhiment; yet it is ſaid not to impoveriſh the land; and this, in fact, is evident; for when the madder is dug up, the land will be in excellent condition to bear a good crop of wheat.

I have tried ſeveral ways, and at length am of opinion, that the beſt method of raiſing madder in France, is from the ſeed: it occaſions, indeed, at firſt, ſome delay; but by continuing to ſow a quantity in the nurſery every ſpring, you will never fail of having plenty of plants.

The ſeed muſt be ſown on a bed of earth, dug well, and made very fine by the rake, with which inſtrument the ſeed muſt be ſlightly covered.

When the plants appear, they muſt be carefully weeded, and ſet out with a hoe: the bed muſt, during the whole firſt and ſecond ſummer, be kept very well hoed, and clear of weeds; and, if this is done, they may be planted out the ſecond autumn.

I have many reaſons for preferring this method in France; but I ſhall forbear giving a detail of them, becauſe my opinion, with reſpect to planting madder in England, is different.

The ſeed of madder does not ripen ſo well with you, as with us; neither does it, as I have been informed, take ſo well on being ſown. For theſe reaſons, I would recommend it to you to make your plantation with ſhoots that

are

* Mr. Miller is of a different opinion: in his Treatiſe on the Culture of Madder he ſays, it thrives beſt on a ſoft ſandy loam, and if it has been in tillage ſome years, it will be better than that which is freſh broken up. O.

are put forth by the old roots in ſpring. I have practiſed this method, and met with ſucceſs.

For madder to ſucceed well, there ſhould be a great depth of good ſoil *, and it ſhould be turned up very deep with a plow, or, what is much to be preferred, with a ſpade. When the ground is properly prepared, it ſhould be planted with ſets, being the ſpring-ſhoots pulled up in a madder-plot, with ſome root to them; for, if they have not ſome root and fibres, they will not take kindly: theſe ſhoots generally come from the layers of the plants, and great care ſhould be had in taking them up, or the crop of madder will be damaged: the beſt way of doing it is with a dibble †, that has a flat edge ſhod with iron: this, on being thruſt into the ground, cuts off the root at a proper length, and by gently declining the handle of the dibble, raiſes the ſet without injuring the fibres of the root; and great care ſhould be had not to take up too many of theſe ſhoots, or ſtalks, as they are undoubtedly neceſſary to the ſupport and thriving of the principal roots, which, were they deprived entirely of their ſtalks, would certainly periſh.

It is ſcarcely neceſſary to inform you that, as faſt as theſe ſets are taken up, they ſhould be immediately replanted.

To make the method of planting theſe ſets more intelligible to you, I muſt obſerve, that they are planted nearly as potatoes are planted in Ireland; that is, a ſtraight furrow is drawn, the ſets are put into it, the earth of the ſecond furrow is thrown over them, the ſecond furrow is filled with ſets, &c. and ſo on till the whole ground is planted.

We place the ſets here within three inches ‡ of each other; but this I think is too near for good land: perhaps they would thrive better, was double the ſpace allowed:

when

* Mr. Miller ſays, at leaſt, two feet and a half, or three feet N

† Mr. Miller thinks the ground had better be opened with a ſpade, that the ſhoots may be ſeparated from the mother-plants with as much root as poſſible. R.

‡ This is undoubtedly too near; a foot ſhould certainly be allowed. O.

when three rows are planted a foot aſunder, we leave an interval of four or five feet, according to the ſtate of the land.

Grounds planted with madder always ſucceed beſt when gentle rains fall ſoon after the work is done, as the ſets take root the readier, and the whole gets into a thriving way.

In Holland and Flanders their method of planting differs from that above deſcribed: they take up their ſets from an old madder-ground in May, and they plant them again immediately with a dibble, about three inches aſunder, in rows about fifteen inches from each other; they form their beds about ten feet wide, and leave intervals of only one foot and a half, or thereabout.

The beſt time of planting a madder-ground is, undoubtedly, in autumn *, as the ſets are then beſt furniſhed with roots, and the rains which commonly fall at that ſeaſon forward their growth.

As the ſtalks of the madder-plants are to be laid down and covered with earth, the intervals ſhould be every now and then ſtirred to keep the ſoil looſe. This covering is done when the ſtalks are about fourteen or fifteen inches long: after the ground has been well cleared of weeds, a part of the ſhoots in each row are laid down in the intervals on the looſe earth, and ſlightly covered with the ſame earth; obſerving, however, not to cover them entirely: the end of each ſhoot ſhould be left out of the ground, or they will not grow, and the whole work would be thrown away. The intention of laying theſe ſhoots down † is, that they may be converted into roots, and thereby encreaſe the quantity for ſale; but all the ſhoots

* Mr. Miller ſays, that the beſt time for planting madder is about the middle or latter end of April, according as the ſeaſon is more or leſs forward, which muſt be determined by the young ſhoots; for, when theſe are about an inch and a half, or two inches above ground, they are in the beſt ſtate for planting. He adds, that when the ſhoots are longer, they are very apt to droop upon being moved, eſpecially if the ſeaſon ſhould prove warm and dry; and if their tops wither and decay, the roots will be greatly weakened. O.

† Mr. Miller, in his directions for cultivating madder, takes no notice of this method, uſed in France, of laying down the ſtalks

ſhoots muſt not be laid down, or the diſproportion betwixt the ſtalks and the root would be too great.

This work may be done with great eaſe with the common implements: let a furrow be opened cloſe to each ſide of the bed with a plow: in theſe the ſhoots are laid down, and covered ſlightly with a hoe.

None of the ſtalks of the madder ſhould be pulled up the firſt year, as it would too much weaken the roots by diſturbing them, and tearing off their fibres.

After laying down the ſhoots the firſt year, the madder-ground requires no farther care, except being kept clear of weeds; and in the autumn of the ſucceeding year it may be taken up *, in order to its being prepared for ſale: the earth of the intervals muſt always be kept looſe by tillage.

When the madder-roots are taken up, the whole land gets a thorough plowing, and ſome freſh roots or ſets are regularly planted in rows, in the intervals of the former year; and when this ſecond crop of madder is off, the land will be in fine condition to bear excellent crops of corn; for madder is no impoveriſher of land, and the frequent tillage it requires, brings the land into fine tilth, reducing it into as ſmall particles as the bed of a well-kept garden.

The beſt huſbandry is, not to plant the ſame land in madder for many years afterwards †; and whenever it is again planted with that crop, it ſhould be well dunged, manured, and tilled, the preceding year.

When the ſtalks begin to wither, that is, about the latter end of October, the roots are to be taken up; and the cheapeſt and ſhorteſt way of doing it, is to looſen the earth with a common plow, firſt taking off the earth-board and coulter: when the earth is thus looſened, women and children

ſtalks in order to their being converted into roots: he mentions, indeed, the Dutch method of covering the haulm in autumn; but that is for a different purpoſe, *viz.* to keep the froſt out of the ground. O.

* In Zealand they let it lie three years in the ground; but perhaps they ſuffer their roots to grow too large: we think the richneſs or poverty of the ſoil ſhould govern this circumſtance. O.

† The Dutch allow four years interval betwixt their crops of madder. O.

dren may ſerve to pick up the roots; and wherever any difficulty occurs, the labourers turn up the ſoil with their ſpades.

But a much better, though rather more expenſive method, is to have the earth of the beds turned into the intervals with a three-pronged fork: by this method the roots are taken up almoſt without damage; and many which lie a little deep are ſaved, but which would otherwiſe be left in the ground and loſt; and particularly moſt of the vertical or tap-roots are got up *.

When the roots are taken up, they are dried as much as poſſible in the air, afterwards carried to a kiln, and laſtly to the mill to be ground.

A light loamy ſoil is better for madder than a rich ſtrong clay; it loves moiſture, but is killed if it is overflowed: therefore, if the ſoil is in other reſpects proper, but too wet, it muſt be firſt drained, or, at leaſt, the beds muſt be raiſed high, and the intervals ſunk low: on the other hand, if the land is too dry, the intervals may ſafely, and even profitably, be raiſed above the beds: this will at leaſt prevent the young freſh-planted ſets from being hurt by too much drowth.

When the upper ſtratum of ſoil is deep, it is to be obſerved that the land cannot be ſtirred too deep: the only thing to be apprehended is the expence of doing it: the more the earth is reduced, the more nouriſhment will it afford to the roots of the madder; they require a great deal; but in general madder pays well for any labour that is beſtowed on it.

Dry

* Miller directs the roots to be taken up in the following manner. A deep trench ſhould be dug at one ſide of the ground, next to the firſt row of madder, to make a ſufficient opening to receive the earth, which muſt be laid therein in digging up the row of roots, ſo that it ſhould be at leaſt two feet broad, and two ſpits and two ſhovelings deep, and ſhould be made as cloſe as poſſible to the roots, without breaking them or cutting them in doing it: then the row of roots muſt be carefully dug up, turning the earth into the trench before mentioned. In doing this, there ſhould be, to every perſon who digs, two or three perſons to take out the roots, that none may be loſt; and as much of the earth ſhould be ſhaken out of the roots as poſſible: and after the principal roots are taken up, there will be many of the long fibres remaining below; therefore, in order to get the roots as clean as poſſible, the whole ſpot of ground ſhould be dug the ſame depth as the firſt trench; and the pickers muſt follow the diggers, to get them all out to the bottom. N.

Dry weather is, if poſſible, to be choſen for taking up madder-roots, as the earth then eaſily falls off them, and they need not be waſhed, which is to be avoided; and, in fact, there is no occaſion to waſh them, unleſs they grew in a ſtiff ſoil, and the weather was very wet when they were taken out of the ground.

Some judgment is required reſpecting the time of taking up theſe roots: I have already mentioned that they will, in general, be fit for uſe by the latter end of the ſecond autumn; but this is not always the caſe; and it is much better to let them lie in the ground another year than to ſpoil a crop.

The Dutch often take them up too ſmall *, and the French almoſt as often let them grow too large. The two extremes are equally to be avoided: the proper time to take them up is when they are about the ſize of a ſwan's quill; they then yield moſt dye, and are of courſe moſt proper for uſe. The time when they arrive at this proper ſtate, depends not only on the nature of the ſoil in which they have been planted, but alſo on the good huſbandry that has been beſtowed on the land; for without proper tillage they will turn out but an indifferent crop; but if they are planted on a good loam, are well tilled during their growth, and have favourable ſeaſons, they need never be left in the ground longer than the end of the ſecond autumn, whether they are planted in the ſpring or the autumn.

I have mentioned in this letter many things which will appear trifling to you, when experience has made you more knowing in this culture; for, depend upon it, a greater portion of knowledge is acquired by a little experience than by a great many precepts; the firſt makes a deep impreſſion on the mind, whilſt the latter are ſoon chaſed away by new, and perhaps more pleaſing, ideas.

I would recommend it to you, when you begin to plant madder, to depend more on the judgment you ſhall form of things, than on any thing you can read on the ſubject. If you miſcarry in ſome inſtances, you will certainly rectify matters in your future practice: a ſenſible man cannot be long in the wrong.

* We ſhould imagine the Dutch madder muſt be large enough, as they generally leave it three years in the ground. O.

I have not, I know, given you any ſyſtematical inſtructions in the affair of cultivating madder; and this I purpoſely avoided doing; for, had I attempted telling you in what manner this uſeful plant ought to be cultivated in England, I ſhould certainly have miſcarried, and all I could have ſaid would have amounted only to probable conjecture: had I, on the contrary, given you a circumſtantial detail of our methods of practice here in France, it would only have ſerved to miſlead you, ſo much do the climates of the two countries differ. I am therefore in hopes, that my manner of treating the ſubject will be not only more agreeable, but more uſeful to you, as I have, for the moſt part, only mentioned ſuch circumſtances as may be equally uſeful in the culture of this plant in both countries.

Lay it down as a maxim, that the culture of madder, if properly managed, is very profitable; there are few crops pay better: but then the two extremes are to be carefully avoided; we muſt not let our expences be ſo large as that no crop will repay them; neither muſt we be ſo ſparing as to balk the growth of the plant for want of proper tillage. A great deal is required, yet too much may be beſtowed on it, for the reaſon above mentioned: the golden mean is beſt in this, as well as in all other matters; and what this mean is, can only be learnt from experience; for it is abſolutely impoſſible to lay down maxims that will ſuit all countries, all climates, and all ſoils.

I have probably given both you and myſelf more trouble than was neceſſary in making theſe reflections, as a little recollection would have convinced me that you are far from being uninformed in matters that relate to agriculture; yet, as precepts, which are general, and in themſelves good, cannot be too frequently inculcated, I know you will forgive me; and this knowledge it is that perhaps makes me ſo careleſs of offending you.

Be not backward in letting me know any thing wherein I can ſerve you: the regard I conceived for you, during my reſidence in England, would be a ſufficient inducement for me to contribute all I can to your ſatisfaction, were I not, as I really and in truth am, bound to you by every tie of gratitude and reſpect.

Your

Your behaviour to me when I was unfortunate, and wanted aſſiſtance, I ſhall ever bear in mind; and what made it ſtill more pleaſing and acceptable, was your manner of conferring a favour, than which nothing could be more generous, nothing more truly humane.

I muſt ſay no more, leſt I offend you with the overflowings of my heart: yet you will, I hope, permit me to aſſure you that nothing ſhall ever prevent my being,

SIR,

Your very much obliged humble ſervant,

Paris, Sept. 14, 1761. DE SALENS.

NUMBER XXIX.

A Letter to the Editors, from a Member of the Society of Arts, hinting at a Method of extracting and preſerving the Colour of the Madder-Root.

GENTLEMEN,

THE ſociety is determined, I find, to give all poſſible encouragement to promote the culture of madder in England: it is indeed an object worthy attention; yet there are many obſtacles to prevent this culture from being generally practiſed: I ſhall enumerate a few of them, and afterwards hint at a remedy.

The farmers in general are an obſtinate ſet of men; they are wedded to old cuſtoms, and have, beſides, for the moſt part, an utter averſion to crops that occupy the land two * ſeaſons: from theſe, therefore, we cannot expect much in this affair, as they will ſcarcely ever attempt the culture of madder till they are driven, as it were, into it by a proſpect of immediate gain.

The garden-farmers who live within twenty miles round the metropolis, muſt ſet the example: theſe, indeed, are, in general, a very intelligent ſet of men, ever willing to adopt any real improvement in their practice; yet, till the culture of madder turns out as profitable to them at leaſt as any other of their ordinary crops, we cannot expect they ſhould plant it.

* Madder often occupies the land three ſeaſons. O.

The lands about London are very dear; therefore the objection of the crop's occupying the ground two years holds ſtill good: but this might be got over, provided the planter could have ſale for his root immediately after it was taken up: this is far from being the caſe in the preſent practice; for it muſt be firſt dried in a kiln at a large expence, and then reduced to powder in a mill, before it can be brought to market: a long proceſs for a buſy farmer to ſuperintend.

It is not to be expected that every farmer who cultivates madder, ſhould erect a kiln to dry it, and a mill to grind it: theſe are expenſive works, and would only anſwer in very large undertakings: yet, if he does not erect theſe hitherto neceſſary conveniencies, what is he to do? Why truly he muſt carry his green madder to the next kiln, which may not probably be at any reaſonable diſtance, and make the beſt bargain he can for himſelf; the dried root muſt then be carried to a mill to be ground, before it can be offered to the dyers for ſale.

If the owner of the kiln impoſes on the planter, he muſt either bear it with patience, or let his madder-root heat, ferment, and ſpoil, which it will do in a very ſhort ſpace of time; for it is very ſucculent and full of ſap, inſomuch that, in drying, it loſes at leaſt ſix parts in ſeven of its weight, and ſometimes more.

Some ingenious men in France have tried how it would anſwer to uſe the madder-root green for dying: it did very well; and, as they ſay, there was a ſaving of at leaſt one half, allowing eight pound of green madder to loſe ſeven eighths of its weight in drying, and to be reduced to one pound, which is often the caſe.

In making the experiment of dying with the green root, it was found that four pounds, which would have been reduced to half a pound in drying, was equal in effect to a pound of dried root. This method, therefore, of uſing the green root, would be a great eaſe to the farmer, and a conſiderable ſaving to the dyer; but the misfortune is, that they ſeldom live near enough to each other to put this method in practice: a farmer, who might find it convenient in other reſpects to plant madder, might, perhaps, on enquiry prove to be twenty, thirty, or many more miles diſtant from a

dye-houſe. This ſcheme, therefore, cannot be brought into general practice; though, where the ſituation is convenient, it may be profitably embraced.

To remove all the obſtacles I have mentioned, which prevent the farmers from planting madder, I have formed an opinion, that an inſpiſſated extract might be made of this root, which ſhould retain all the uſeful qualities of the manufactured roots now imported in large quantities for the purpoſe of dying; and it would be only neceſſary to diſſolve this extract in ſome proper menſtruum, to prepare it for uſe.

In what manner this extract ſhould be made I do not pretend to determine, eſpecially as there are many gentlemen, members of the ſociety, who have a much greater knowledge in chemiſtry than I can flatter myſelf to be poſſeſſed of.

Would ſome of theſe gentlemen take upon themſelves the troubling of examining how far, and in what manner, this ſcheme was practicable, there is not the leaſt doubt but that the ſecret would ſoon afterwards be diſcovered, provided the ſociety was to offer a large premium for that particular purpoſe; and I own I think five hundred pounds would, in this manner, be very well beſtowed, as it would, doubtleſs, be a great inducement to our farmers planting madder.

Should this ſecret be diſcovered, ſo as that the extract would anſwer all the purpoſes of the dried root, and with equal or greater certainty, the expence of the proceſs in making it might very eaſily be calculated; and if it was not complicated, the farmer might prepare it himſelf on his premiſes immediately after taking up his root: if, on the contrary, it ſhould require too much knowledge and nicety for him ſafely to practiſe, manufactories might be eſtabliſhed for this purpoſe at proper diſtances, which would not fail being plentifully ſupplied with green root; and this the farmer might either ſell to the owners of the works at a fair price, or pay them after a reaſonable rate, for their trouble in the proceſs.

In Holland their ſoil is for the moſt part peculiarly adapted to the growth of madder; of courſe a great quantity of it is raiſed in a diſtrict: they have public kilns for drying it, and public mills for reducing it to powder; and the neighbouring

ing planters bring in their madder-root to the works, where it undergoes all its preparations at certain reaſonable, fixed, and well-known rates, the farmer having no farther trouble than paying his money, and carrying it thither and bringing it back.

This reduces the profits of a crop of madder to ſome degree of certainty, as a planter need only inform himſelf of the quantity of green root his crop amounts to in weight, to give a probable gueſs at what will be his profit.

With reſpect to England I am fully perſuaded, that, if it is practicable to make an extract, and as it were concentrate the virtues of the root, it is much the better way, as the commodity, though equally uſeful, would lie in a much ſmaller compaſs, be of lighter carriage, and ſoon be as well cheaper, as in much greater plenty, in this iſland.

It is quite unneceſſary to enlarge on the many advantages to be derived from this matter if brought to bear: they cannot but be evident to you, the ſociety, and the public; I ſhall therefore conclude myſelf, GENTLEMEN,

Aug. 14, 1763. Your very humble ſervant,

To the Care of Mr. Newbery, *Bookſeller.* A SILENT MEMBER.

NUMBER XXX.

A Letter to the Editors, on the different Uſes to which the Leaves of Trees may applied.

GENTLEMEN,

THE ſubject I propoſe to write on may appear to us in England of little conſequence; yet I think it may be well worth our attention when ſet in a proper light.

It is not my intention to treat, at this time, of leaves as organs that are neceſſary to vegetation; I ſhall take them under my conſideration only when they become no longer neceſſary to the plants of which they are parts.

We ſuffer our leaves to fall and rot on the ground, without making, in general, any uſe of them; whereas, were they carefully gathered before the fall, and dried, which would be no great expence, they might, upon occaſion, ſerve as fodder for our cattle, as manure for our land; we might make

make hot beds of them; they would ſerve inſtead of ſaw-duſt to preſerve our wines in dry vaults; and, if I am not miſtaken, oak leaves might be a very good ſubſtitute for the bark in tanning leather.

When we intend leaves as fodder for cattle, they ſhould be gathered juſt before the fall, and frequently turned and dried like hay; after which, if they are kept from moiſture and wet, they may be with eaſe preſerved through the winter *.

This will beſt anſwer in the neighbourhood of large woods and foreſts, where there are plenty of trees, and where of courſe the labour of gathering the leaves will be but of little value. Cows eat theſe dried leaves with a good appetite; and there cannot be a better, nor a cheaper fodder, to ſupport ewes through the hard winter's weather. Where a farmer, who has a right of commonage, breeds a large number of ſheep, he will be glad of ſuch a reſource, in a hard winter, to ſave his hay: if the ſheep have not ſome dry fodder, very many of them drop in the winter.

I cannot ſay that I have had any great experience of the uſe of leaves as a fodder †; yet I know they may be ſo applied, and are wholeſome food: I have dried ſome in ſmall quantities, and given them, for ſeveral weeks together, both to cows and ſheep; they eat them freely, and ſeemed to be every way in as good health as when they were fed with hay.

So much for my little experience; but in France the caſe is otherwiſe: they annually conſume leaves there in large quantities as fodder for their cattle, and find them thrive well with it.

On the borders of the foreſt of Orleans, as well as in many other provinces, this practice is highly approved of, and ſtands generally recommended among the inferior farmers,

* In France they give many ſorts of leaves to their cattle. Their cows are very fond of the leaves and tender ſtalks of the madder: this food makes them yield abundance of milk of a good quality; but it has a reddiſh colour, and the butter made of it, though very good, is yellow. They give alſo to their cows the blades or leaves of the ſaffron plant; but theſe give the milk a diſagreeable taſte. N.

† Our correſpondent does not attempt to diſtinguiſh what leaves are wholeſome, and what the contrary: we ſhould be apt to

mers, who have no great plenty of other more valuable fodder.

I would willingly recommend this practice to ſome of our Engliſh farmers: it is a great pity any thing ſhould be thrown away that can be of the leaſt uſe; and I have often, in a woody country, ſeen the leaves of the trees rotting on the ground in autumn; and when I have gone there the winter following, I have ſeen the poor ſheep and half-ſtarved cows crawling on the commons, and almoſt periſhing for want of that nouriſhment which the leaves of the preceding autumn, if properly preſerved, would have afforded them.

To ſay the truth, it would be a very good practice was every farmer to preſerve and lay up in the autumn as many leaves as he conveniently could. No man can anſwer for it, but that his fodder may, by ſome accident or other, run ſhort: ſhould this be the caſe, the leaves would undoubtedly be of very great uſe, and might even be a means of ſaving the lives of many of his cattle: but ſuppoſe even that the leaves ſhould not in the winter be wanted as fodder, they will then ſerve as an excellent manure *, being laid to rot in alternate beds with good earth. In this manner they make a much better manure than either wheat or barley ſtraw, as they abound more with vegetable ſap, raiſe in the earth a more uniform and temperate fermentation; and for this reaſon the effects they produce are more laſting.

Another great advantage they poſſeſs as a manure is, that you are ſure of not ſtocking your land with weeds by the uſe of them: this cannot be ſaid of any of the common kinds of dung.

I ſhall mention another uſe to which the leaves of trees may be applied by the poor, if they are firſt properly dried and

to imagine, that though they may moſt of them be good fodder, yet ſome of them are better than others; and doubtleſs what would agree very well with horſes, oxen, or cows, may not be ſo proper for ſheep: we ſhould therefore be glad if our correſpondents would give us ſome information on this head, that, if any farmer ſhould chuſe to ſave and cure ſome of this fodder, he may know what kind to prefer, ſo as to ſuit beſt his own convenience and the ſtate of his ſtock. O.

* Leaves, when mixed in a compoſt, undoubtedly make an excellent manure; it would therefore be worth while to gather them, was it only for this uſe. R.

and prepared; I mean that they may ſerve inſtead of ſtraw, flocks, or feathers, for beds, bolſters, and cuſhions: nothing can be cheaper for this uſe, and nothing can be wholeſomer or eaſier. I have had ſome experience of it, and find that when leaves are applied to this uſe, it is beſt for them to receive ſome wet in the drying, whether by rain or by water thrown on them is immaterial: this makes them of a tougher contexture, and prevents their falling, by frequent ſhaking, into duſt.

So much for the uſes to which leaves may be applied by the farmers and the poor: but this is not all; the gardeners may find them anſwer a very good purpoſe: I mean, as I have before obſerved, that they are very proper for making hot beds, inſtead of horſe-litter or tanners bark. I know they may be applied to this uſe, becauſe I have tried it. It is only neceſſary to tread them very cloſe in the bed, and give them a proper degree of moiſture: they heat gradually; and their heat is, I think, more equable and permanent than that of horſe-litter, there not being ſo much danger of burning and ſuffocating the plants in the frame. The effect of them nearly reſembles that of tanners bark.

I have alſo applied theſe leaves to another very different uſe; that is, as a ſubſtitute for ſaw-duſt, to put among my bottles in my wine-bins in my cellar: they ſerve very well for this purpoſe, as my cellar is dry; and I the rather chuſe to make uſe of them, as they are eaſily procured, which is not the caſe with ſaw-duſt; for I have been often very much puzzled to get a few ſacks, as I live at a conſiderable diſtance from any great town.

I have but one thing more to mention relative to the uſes of the leaves of trees, which is, that I have great reaſon to think that oak leaves may ſerve, inſtead of oak bark, for tanning leather: I cannot ſay I ever tried them in this intention, becauſe I am not acquainted with the proceſs uſed in tanning; but I have frequently ſoaked them for a conſiderable time in water, and found the water ſtrongly impregnated with their qualities: it had a dark colour and a taſte remarkably aſtringent.

I cannot but perſuade myſelf that the juices of the leaves of the oak have nearly the ſame qualities as the juices that are to be met with in the bark of the ſame tree; and, if ſo, why may not their effects on limed hides be the ſame? I do not know whether any one has ever made the experiment: if it has been made, I ſhould be glad to ſee an account of it in ſome future Number of your collection. I am,

GENTLEMEN,

Oct. 6, 1763. With great reſpect,

To Mr. Newbery, *in* London. Your very humble ſervant,

A COUNTRY GENTLEMAN.

NUMBER XXXI.

A Letter to the Editors, from an Old Member of the Society, recommending the Eſtabliſhment of Magazines of Wheat at Gibraltar *and* Mahon.

GENTLEMEN,

AS your plan ſeems to comprehend every thing that can tend to the public good, I ſhall not, needleſsly, make an apology for troubling you. The intention of my writing is to recommend the eſtabliſhment of magazines of wheat at Gibraltar and Mahon.

It may, perhaps, be aſked, of what uſe will theſe magazines be? I ſay, they will encreaſe our trade, and bring money into the nation; for I would not be underſtood to mean, that theſe magazines ſhould belong to the public, and be for the uſe of the garriſons: no, I would have them the property of a company of merchants.

It is well known that in Barbary, Turkey, Italy, and the Levant, though they have generally large crops of corn, ſtill there is, for the moſt part, a dearth and ſcarcity once in ſix or ſeven years: at theſe times wheat ſells at a great price, and happy are they that have moſt of it.

By what has been ſaid it will be evident, that were there magazines eſtabliſhed in the places above mentioned, a great profit might every now and then be made of the corn contained in them; and in this trade there would be

no

no hazard, becauſe there would always be a valuable ſtock in hand.

The only queſtion then would be to find proper magazines to contain a ſufficient quantity of corn; and than this nothing could be more eaſy; and ſo it muſt, I am certain, appear to thoſe that know how wheat is, and has been, preſerved in many parts of France, Italy, and Sicily. The climate of thoſe countries is very hot, the wheat ripens well, is got in dry, and is well adapted for keeping.

Immediately under the upper ſtratum of earth, the inhabitants * frequently find a hard dry rock, (this is the caſe both at Gibraltar and Mahon): in this they dig a large deep cell or cove, as it is called, taking care to faſhion it ſo as to have a ſmall narrow aperture or mouth. In this cove they ſhoot their ſacks of wheat, after it is dreſſed and fit for the mill: when it is full, the ſurface is but ſmall: this they frequently ſprinkle over with quick lime, which being by the action of the air ſoon reduced to duſt, heats the corn, and occaſions the grains near the ſurface to ſprout and ſend forth long blades: theſe ſoon decay, and form together with the lime a thick coat, which keeps the remainder of the corn from injury: the cove is then covered with a ſtone, and left for perhaps an hundred years: in fact, it is impoſſible to ſay how long it will keep in this manner †.

It is no uncommon thing in Italy to diſcover theſe coves full of good corn by accident, when it always turns out a

* At Chalons, in Burgundy, they have granaries where they ſtill keep corn thirty or forty years: over the heap they ſtrew quick lime, in fine duſt, to the thickneſs of three inches, and ſprinkle this over with water, whence ariſes a cruſt. The grain, near the ſurface, ſprouts to the height of a foot and a half: theſe the winter kills, and the heap is left untouched till neceſſity obliges them to uſe it. R.

† A little time after the ſiege of Metz, under Henry the Second of France, the duke d'Eſpernon laid up vaſt ſtores of corn in the citadel, which was preſerved in good plight till the year 1707, when the French king, and his retinue, paſſing that way, they made bread of ſome of it, eat it, and found it very good. A cruſt was formed on its ſurface by the germination of the grain next underneath to the thickneſs of an inch and a half. The town's people commonly walked on it, without its giving the leaſt way. R.

treaſure to the owner of the land. But I cannot illuſtrate this matter better, than by relating an affair which happened no great number of years ago, the truth of which many gentlemen of great fortunes and known veracity, in this metropolis, can teſtify.

The Marquis of Bonaretti was formerly a merchant in Liſbon. After having with great reputation acquired a very conſiderable fortune, he retired to ſpend the remainder of his days in his native country, and purchaſed an eſtate in the neighbourhood of Naples.

The manſion-houſe of this eſtate being old, and out of repair, the Marquis ordered it to be pulled down, intending to build another more ſumptuous on the ſpot.

When the workmen came to the foundation, they diſcovered a large ſquare ſtone: this the ſurveyor would not ſuffer them to touch till he had ſent for the Marquis.

The ſtone being raiſed, expoſed to view a large cove of very fine wheat. With this wheat the Marquis freighted ſeveral ſhips, which he ſent to Liſbon, and other places.

It was ſold in the public markets, and declared, by every purchaſer, to ſpend as well as if it had been of the laſt year's growth.

This cove of wheat turned out to be of ſuch conſequence, that the family which had ſold the eſtate to the Marquis of Bonaretti, brought their action againſt him for an account of the produce: he pleaded that it was not depoſited there, either by them or their anceſtors; on which account it could not belong to them: on the proof of this he reſted the iſſue of his cauſe.

This family had been forty years, and upwards, poſſeſſed of the eſtate; but the Marquis caſt them, becauſe they could not prove any right to it.

When this matter was decided, the family that was before them poſſeſſed of the eſtate, for above ſeventy years, commenced their action; but with as little ſucceſs as the former, for they could not trace any the leaſt circumſtance which gave the count reaſon to imagine the cove was filled with wheat by any of their anceſtors; though at this laſt trial, ſome of the witneſſes, who depoſed as to their knowledge of the ſeveral poſſeſſors of the eſtate, were upwards of fourſcore years of age.

Thus,

Thus, in theſe two trials, it was evidently proved that this wheat had been depoſited there near 120 years before, and how much longer it was impoſſible to determine*.

The Marquis de Bonaretti's right to it was judged to be indiſputable, as the former poſſeſſors might as well have claimed a right to a gold mine (if one had happened to have been found there) which their anceſtors had never opened, nor knew any thing of.

Many perſons who bought ſome of this wheat at Liſbon, were curious enough to have it ground into meal, and made into bread under their own immediate inſpection; and they have often ſince declared that the bread was as good, and as well taſted, as any they had ever ſeen.

But to return to my firſt ſubject, nothing could, I think, be more expedient than to eſtabliſh the magazines I recommend both at Gibraltar and Mahon. Gibraltar is almoſt an entire rock: the expence of digging the coves would not be any very large ſum; it might very well be done by the ſoldiers in garriſon, doubling their pay whilſt they were about this work; and the coves, which would then be the property of the government, might be let to the merchants at a certain moderate rent.

The ſame might be done at Mahon, and in the ſame manner.

Theſe magazines would not only anſwer the purpoſe of keeping wheat for the merchants in time of peace; but they might alſo ſerve the government, in time of war, to keep ammunition, proviſions, and warlike ſtores for the ſeveral garriſons: theſe neceſſary articles would here be ſecure from danger, from the falling of bombs, by which many magazines of powder are blown up; proviſions might be laid in in greater plenty; and with ſuch aſſiſtance it would be almoſt impoſſible to determine how long a fortreſs could withſtand the regular attack of even a royal army.

I mean this letter only as a hint, to be enlarged on by ſome of your correſpondents.

As

* At Sedan, in Champagne, on the confines of Luxemberg, in France, there was a granary cut in a rock, wherein a heap of corn was preſerved 110 years. It was covered with a cruſt a foot thick. R.

As to the affair of the Marquis of Bonaretti, ſome body may, perhaps, inform you of more particulars relative to it than I have been able to recollect, for my memory is not ſo good as it has been. Excuſe, Gentlemen, this haſty production from

London, Oct. 3, 1763. Your moſt obedient ſervant,

To Mr. Newbery, *for the* Muſeum, &c. A MERCHANT.

NUMBER XXXII.

A Letter to the Editors, relative to ſome Trials, made laſt Harveſt, of the Brabant *and* Hainault *Scythes for mowing Wheat.*

GENTLEMEN,

IN reading your firſt publication, I find by the contents of N° IV. that you had not then received any relation of the trials that were made in this county, laſt harveſt, of the Brabant and Hainault ſcythes for mowing wheat.

A gentleman, a foreigner, came down here to a neighbour's of mine, in order to put us into a method of going about this work.

Many trials were made in the preſence of myſelf, and a great number of others: the ſcythes did their work well; they cut the corn within two inches of the ground: and though our workmen were of courſe a little aukward, ſcarcely any ears were ſcattered: but the greateſt advantage is, that a man with one of theſe ſcythes can cut down, at leaſt, double the quantity of wheat in a day, he can with a ſickle or hook*.

The chief objections made to the introduction of this method were, that the ſtubble is left too ſhort, and on that account is not fit for thatching; that the weeds are cut with the corn †, and will be apt to mould or heat, and the ſeeds to mix with the corn in threſhing; and that the poor are deprived of their gleanings, as none of the corn is ſcattered.

But

* For the method of uſing the wheat-ſcythes, deſcribed by Monſ. de L'Iſle, ſee page 20, of this collection.

† See pages 21 and 22.

But theſe objections muſt ſoon fall to the ground, when we reflect that, by mowing, the ſtraw is much longer, and certainly ſtraw is much better for thatching than ſtubble *.

As to the weeds being cut with the corn, it is of no conſequence; for they are eaſily ſhaken out of the bottoms of the ſheaves, after drying a day or two; and the ſheaves may be ſafely left to dry, if they are laid in the following manner †.

Suppoſe three tobacco-pipes to repreſent three ſheaves, the bowls to be the feet of the ſheaves, and the ſmall part the ears: lay one of theſe on the ground; then take another, and lay the bowl of it under the ſmall end of the firſt; take afterwards a third, and diſpoſing them in form of a triangle, lay the bowl of the third under the ſmall end of the ſecond, and the bowl of the firſt under the ſmall end of the third: by diſpoſing them in this form, the ears are always kept from the ground, and will endure a great deal of wet without damage.

As to the ſeeds of the weeds being threſhed, and mixing with the corn, that may eaſily be avoided; for the wheat, by this method of mowing it, is ſo regularly diſpoſed in the ſheaf, that the ſheaves need only be threſhed on the ear, without being unbound.

The objection, that the poor would be deprived of their gleanings, is a mere farce: their time might be much better employed; and by the ſame parity of reaſon, the more corn the farmer left for them in the field, the more juſtice he would do them; and this few would venture to aſſert, as cuſtom might in time extend it to half the crop: beſides, as by this new method a great deal more corn will be inned, it will of courſe be cheaper the year round, and eaſier purchaſed by the poor.

The foreign gentleman was of great uſe to us: he is intelligent and communicative, and we all of us acknowledge ourſelves much obliged to him.

Many in this county propoſe making more extenſive trials of it next harveſt, and there is no doubt but that in the ſpace of a few years it will be brought into conſtant uſe ‡.

* See note under page 18.

† See the note under page 21.

‡ See N° 4. page 17. *paſſim.*

A ſhort certificate of the advantages reſulting from the practice of this method, was ſome time ago drawn up: it was preſently ſigned by a number of gentlemen, farmers, gardeners, labourers, &c. and tranſmitted to Dr. Templeman, ſecretary to the ſociety of arts in London, to be, if neceſſary, publiſhed for the benefit of the kingdom. This new method * will, doubtleſs, be introduced to the knowledge of the Engliſh world with a better grace, coming under the ſanction and recommendation of ſo reſpectable and uſeful a ſociety. Believe me to be, GENTLEMEN,

Your very humble ſervant, and well-wiſher,

Northamptonſhire, W. H. Farmer.

Oct. 10, 1763.

To the Care of Meſſ. Davis *and* Reymers, *Bookſellers, in* London, *for their new Work on Huſbandry.*

* The editors are happy, that, as members of the ſociety, they have an opportunity of conveying to the readers of this collection, a perfect idea of the form of the ſcythes lately tried in Northamptonſhire: for this purpoſe they have annexed a plate engraved from a drawing taken from the three ſcythes now depoſited in the ſociety's machine-room, for the inſpection of the curious. The parts are repreſented ſeparate, that they might be more diſtinct: the dimenſions and proportions follow. Fig. 1. is the handle, or mounting, of the largeſt ſcythe: the length of it from a to c is eight feet, from a to b five feet, from b to c three feet: at c is the part whereon the blade is fixed: d ſhews the two bends which ſerve inſtead of a cradle. Fig. 2. is the blade to this ſcythe: from the heel a, to the point b, meaſures three feet, and it is two inches and a half broad: when the ſcythe is mounted, from the point of the blade b, to the end of the long handle a, meaſures an angle of ſeven feet. Fig. 3. is the blade of another ſcythe, the length and breadth the ſame as the laſt blade. Fig. 4. is the handle to this ſecond ſcythe: from a to d, it meaſures three feet ten inches, from a to b two feet, and from b to c one foot ſeven inches: the blade is fixed at a, and when the ſcythe is mounted, the angle from the point of the ſcythe-blade to the end of the handle, meaſures three feet nine inches. Fig. 5. is the blade of the ſmalleſt ſcythe: from a to b, it meaſures one foot nine inches, and is two inches and a half broad. Fig. 6. is the handle or mounting to this laſt ſcythe: at a the blade is fixed: from a to b is one foot five inches and a half; the angle from b to c, four inches and a half; from c to d, five inches; from d to e, three inches and three quarters. Fig. 7. is the gathering-hook: the length of its handle, from a to b, is three feet nine inches; the hook, from b to c is ten inches long. We ſhall defer giving the mechaniſm of mowing with theſe ſcythes till another opportunity, in the mean time ſhall be glad to hear from ſuch of our correſpondents as have ſeen them at work, on the ſubject. N.

Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
a
b
c
d
e

Muſeum Ruſticum, &c.

For NOVEMBER, 1763.

NUMBER XXXIII.

A Letter from an Eſſex *Farmer to the Editors, on the Decay of Timber in that County.*

GENTLEMEN,

HAVING ſeen and approved of what has been publiſhed of your work, I hope you will not refuſe me the pleaſure of being proclaimed as your correſpondent: I would wiſh, as well as others, to do my country ſervice; and, indeed, the thoughts of a plain man are not always to be deſpiſed.

You, gentlemen, ſeem to have different notions of things; for I find you attend more to the utility of the ſubject, than the elegance of the ſtyle of your correſpondents letters: this encouragement, it is, has induced me to aim at appearing in ſuch good company.

I live, Gentlemen, not far from the borders of Tiptree-Heath, in the county of Eſſex, where I hold a conſiderable farm, and have beſides, of my own, a ſmall freehold plot, worth about fifty pound a year; yet am I content with the humble title of yeoman, without aſpiring to that of gentleman, as many of my brother farmers in this county are very apt to do.

My preſent farm I have occupied many years, though I am not an old man; and I have of courſe ſeen many petty re-

volutions, even at ſuch a diſtance from the metropolis; but the greateſt revolution of all, I intend making the ſubject of my preſent letter.

When firſt I began to make obſervations on men and things, I remember there was great plenty of timber within ten miles round about my neighbourhood; but this is no longer the caſe: what it is owing to, may not indeed be quite ſo apparent.

Almoſt all the farms were well wooded; for, beſides the copſes and groves of fine timber, which were every where to be ſeen, many thouſand fine ſticks grew in the hedge-rows. Theſe hedge-rows were formerly thought to be of ſervice, not only to ſhield the crops from blaſting winds, but to ſhelter the cattle in the cold winter's weather.

Our methods are now greatly altered, amended they ſay; for, inſtead of hedge-rows, they will ſcarcely ſuffer a ſtem of white-thorn to grow; *A quick-hedge*, ſay they, *exhauſts the land, and ſtarves all that part of the crop that is within its reach:* So that our fences now conſiſt chiefly of a ditch, a bank, and a dry hedge; for they plough up to the ſtake, that they may not loſe an inch of land.

I am no advocate for your ſlothful ſlovenly land-holders, who would ſuffer their land to be over-run with thorns and thiſtles; yet I cannot but think that every thing may be carried to extremes; and this has been the caſe in the affair I am now writing of: the landlords ſeemed to encourage their tenants to become what we call neat farmers, by cutting down the timber * on their lands, though the true reaſon of their conduct was, the deſire of recruiting their almoſt empty purſes.

Had you, gentlemen, like me, ſeen, about twenty years ago, great quantities of fine elm for keel-timber, ſtout oak knee-timber, and planks without number, ſhipped at the port of Malden, in order to be carried to the king's dock-yards, you would undoubtedly join with me in regretting the deſtruction of the fine woods in which this timber grew; woods, which lay ſo convenient for water-carriage, that they ought

* The timber has been in many counties too much deſtroyed by grubbing up the hedge-rows. N.

ought to have been preſerved for the uſe of the navy, though an act of parliament had paſſed for that particular purpoſe.

How ſmall are the remains of the many fine woods which formerly bordered on Tiptree-Heath? How were the trees cut down by thouſands ſome years ago in Kelvedon-Hall wood? What is Chiſſel-Grange to what it once was? And how little good timber is left in the pariſhes of *Tolleſbury*, *Tolleſhunt-darcy*, *Tolleſhunt-knights*, *Beckenham*, *Layer*, *Fering*, *Meſſing*, *Salcot*, *Malden*, &c. &c. &c.? places which formerly were almoſt an entire grove.

I am no enemy to reformation: there might, perhaps, in thoſe times, have been too much wood; but I am ſure I am now warranted in ſaying there is far too little *.

Were the lands which have been cleared, of a fine rich ſoil, and more proper for tillage than timber, I ſhould not think there was ſo much reaſon for complaining; but when I find theſe lands in general of ſuch a nature, as to yield much leſs clear profit by tillage than they did by timber and underwood, we may ſurely venture to aſſert, that the woods had better not have been grubbed up †.

* When a country happens to be over-wooded, the madneſs of clearing it is often carried to exceſs. We have had many inſtances of this in England, and in ſome of our American colonies that border on the ſea: the timber is ſo far deſtroyed, through this madneſs of clearing, that even fire-wood is exceſſively dear; a horrid miſtake! which one would ſcarcely have thought any men of common forecaſt could have been guilty of: but the misfortune is, that preſent profit, in general, gets the better of every other conſideration. R.

† When a gentleman is about to grub up a wood, and convert the land to tillage, he ſhould, before he takes his final reſolution, be particularly attentive to circumſtances. It is neceſſary firſt to make an exact calculation of the profits annually reſulting from the wood: the nature of the ſoil ſhould be examined, to ſee if it is proper for tillage, and whether there will not probably be a loſs by converting it to that uſe; independent of the hazards from bad crops, bad ſeaſons, and failing of tenants. Theſe matters entirely regard the land-owner; but he ſhould alſo have ſome regard to the public intereſt, and enquire whether the county is not already too thinly wooded, and whether the grubbing his wood, if of any ſize, may not greatly affect the price of faggot-wood and billeting for the poor; and if it is an inland county, this is of the more conſequence, as it cannot be ſo eaſily ſupplied with coals; the poor cannot afford to be at any great expence for their firing. N.

This frenzy is carried to ſuch a length, that I could mention to you ſeveral farms, not many miles diſtant from that I occupy, which will not ſupply the tenant's kitchen with fire-wood; and the landlords, on this account, allow a certain deduction in the rent to buy coals.

I cannot yet bring myſelf to think, but even a proper number of hedge-rows may be uſeful on a farm; and I am ſure a little copſe or wood is a deſirable thing.

My ploughed land I keep as clean as any body's, being no ſloven in my natural diſpoſition; yet I have often taken it into my head, that a lucky hedge-row has ſaved me now and then thirty acres of wheat from being blaſted, when my neighbours crops, which were more expoſed, were, in a manner, totally ruined.

But, Gentlemen, to be more ſerious, I think it a point of national concern, that all woods, which are within reaſonable reach of water-carriage, ſhould be preſerved for the uſe of the navy: our ſhips are not built ſo cheap as they were formerly, owing to the almoſt unaccountable and ſudden decreaſe of the timber fit for that purpoſe.

We might with proper care ſupply ourſelves with good pines for maſts, fine elm for keels, and excellent oak for knees, planks, &c.

That a remedy in this matter is neceſſary, has been long allowed; is it not, therefore, ſurpriſing, that ſomething effectual has not been done in the affair before it is too late?

It is not eaſy to calculate how many acres of crown land there are in the kingdom, which do not produce a ſingle guinea of rent in a year to the king: a great deal of this land lies in a proper ſituation for planting timber, to ſupply the future wants of the navy; and to what better uſe can it poſſibly be applied?

Let every man ſpeak of what he knows: I am, and always have been, informed, that Tiptree-Heath is crown land: this is a large tract of land, ſeveral miles wide, and many long, which lies betwixt the great road to Colcheſter, and the towns of Malden and Tolleſbury: it contains many thouſand acres of land, that would ſupport and nouriſh ſome hundreds

hundreds of thouſands of good timber-trees, ſuch as oak, elm, aſh, firs, and pines.

Its being ſo near the port of Malden, makes it very convenient for water-carriage to London, or the ſeveral dock-yards on the Thames and Medway. I would therefore recommend, that this heath be immediately planted with ſuch kinds of timber as may be thought proper, at the expence of the government, and that it be encloſed and preſerved for the uſe of the royal navy alone; for perhaps by the time this timber is fit to fell, the government may be glad of ſuch a reſource; at leaſt, I am certain ſuch a ſupply will be welcome, if the preſent faſhion of deſtroying woods laſts much longer.

I cannot ſee that any body could reaſonably object to my ſcheme, for planting Tiptree-Heath with timber: it is true, there are a few cottagers live on it; but theſe, were they at all induſtrious, could get a much better livelihood by removing into the neighbourhood of the villages, where they would not fail being employed, at good wages, in the ſeveral works of huſbandry.

The only murmurers would, I believe, be ſome borderers who have been free enough to encloſe land from the Heath: theſe, perhaps, would expect to have their title to ſuch land enquired into; and this would prevent their giving a willing conſent to the planting of the Heath with timber. But private intereſts, let them be of what nature they may, ſhould always give way to the good of the common weal.

If you think my thoughts of conſequence * enough, you will of courſe inſert them at a proper opportunity in your collection: if they ſhould not be ſo far honoured, it will be a leſſon of humility to me, and teach me not to ſet too high a value in future on my own idea of things.

You will, however, I hope, believe me to be, with great reſpect, GENTLEMEN,

Witham, Oct. 7, 1763. Your humble ſervant,

To the Care of Mr. J. Newbery, I. K.
in St. Paul's Church-yard, London.

* We ſhould be glad to hear from this gentleman, whenever his leiſure permits him to oblige us with his letters. N.

NUM-

NUMBER XXXIV.

A Letter to the Editors, from a Member of the Society, on the Obtaining of the Lake-Red, uſed by the Painters in Enamel, by a cheaper Proceſs, and from leſs valuable Materials.

GENTLEMEN,

IT has, it ſeems, been thought an object worthy the ſociety's attention, to publiſh a premium for the diſcovery of a more cheap method of obtaining the fine red colour uſed by enamel-painters. That commonly made uſe of is a preparation from the fineſt gold *: this muſt of courſe enhance the price of the colour, and thereby make the portraits, or pieces painted in enamel, be much dearer to the purchaſers.

Many have attempted to remove this obſtacle to the progreſs of the art, but hitherto with little ſucceſs.

A very great man in this way of painting was the late Mr. Zincke †: he knew the diſadvantage his fraternity laboured under in uſing ſo expenſive a colour; but his time was ſo much

* The lake-red uſed by the painters in enamel is compoſed of fine gold, diſſolved in aqua regia, with ſal armoniac, or common ſalt. The diſſolution being completed, it is put in a cucurbit with ſpring-water and mercury, over hot ſand for twenty-four hours. The powder remaining at the bottom of the cucurbit, when the water is poured off, is ground up with double its weight of flower of ſulphur, and put in a crucible over a gentle fire; and when the ſulphur, which takes fire, is exhaled, the red powder remaining is ground with rocaille. The vermilion-red is made with vitriol, calcined between two crucibles luted together; then waſhed in aqua fortis, and afterwards in fair water: the fire is to be moderate, and to remain about half an hour.

† We are indebted to the French for this art of painting in opake enamel; nothing of the kind having been attempted before the year 1630, when James Toutin, a goldſmith of Chaſteaudun, firſt diſcovered it: he communicated the ſecret to his fellow artiſts, who, in their turns, contributed to the bringing it to perfection. The firſt who diſtinguiſhed himſelf was Dubie, a goldſmith, who wrought in the galleries of the Louvre. After him came Morliere, a native of Orleans, who applied himſelf chiefly to the painting on rings and watch-caſes. His diſciple, Robert Vauguer, of Blois, exceeded them all, both in his deſigns and his colours. After him Pierre Chartier, of Blois, applied himſelf to the painting of flowers, wherein he ſucceeded to admiration.

much taken up by his buſineſs, that he could not attend to the experiments that would be neceſſary to make the wiſhed-for diſcovery.

When Mr. Zincke was in his greateſt eminence, a young man of extraordinary genius, by name *Gamble*, was bound to him as an apprentice: his application to buſineſs during the time he ſerved was truly wonderful; and the progreſs he made ſurpriſed even his maſter, though he was no ſtranger to his uncommon talents.

Mr. Zincke thought he ſaw in his pupil the beginning of great eminence, and was determined to be the firſt to encourage ſo promiſing a genius. Some little time therefore before the term of young Gamble's apprenticeſhip was expired, Mr. Zincke made the following propoſal to him, viz. That if he would continue with him as an aſſiſtant, he would give him his board, lodging, keep him a ſervant, and a couple of horſes, and allow him beſides 300l. *per annum* *.

Youth is naturally ambitious; and this was a great temptation, eſpecially as the young man could not hope to make at firſt near ſo much by entering into buſineſs for himſelf: however, he declined the propoſal.

His motive for ſo doing was, indeed, out of the common way; the road to riches, eminence, and fame, lay open before him: he might worthily have ſucceeded his great maſter in his buſineſs, and paſſed a life of induſtry in affluence and eaſe.

The beſt painters in enamel have always prepared their own colours; Mr. Gamble was therefore of courſe acquainted with the nature of each proceſs: his whole ambition was turned to a deſire of improving the methods of making the colours

* We have in England had ſeveral very eminent artiſts in this way: in fact, portraits were firſt painted in enamel in this iſland. M. Felibien acknowledges, that the firſt and moſt finiſhed portraits, and thoſe in the fineſt colours, were brought into France by Petitot and Bordier, from England. This occaſioned Louis Hance and Louis du Guernier (two good painters in miniature) ſoon after to attempt the like; in which the latter ſucceeded beyond every body that had gone before him: he likewiſe invented ſeveral new teints for the carnations; and, had he lived, would probably have merited the glory of carrying the art to its laſt perfection.

colours then in uſe; and this was the true motive of his declining Mr. Zinke's propoſal.

Laying aſide therefore his painting, he aſſiduouſly laboured for many years to accompliſh his wiſhed-for end: he ſoon improved many of the colours *, and ſhortened the proceſs uſed in making others: had he been content with this new-acquired knowledge, he might ſtill have been rich; but this was not his aim; one thing was yet wanting, that is, a cheaper way of procuring a fine lake red, than that uſed in common practice.

He was induſtrious, indefatigable, and perſevering; and by theſe qualities, added to his extenſive knowledge in the ſubject of his ſearch, he hoped to ſurmount all obſtacles.

His diligence was really ſurpriſing for ſeveral years, when poverty, of which he had yet formed no idea, for ſome time put a ſtop to his labours: he ſoon, however, reaſſumed them with added vigour; he ſtruggled with every diſadvantage of fortune, and after about twenty years intenſe application, accompliſhed his long wiſhed-for purpoſe.

It might naturally have been imagined he would now have taſted the ſweets of his long ſtudy, but in this he was diſappointed;

* The compoſition of the ſeveral colours uſed by enamel painters is as follows: *white*, which is the baſis, is the fineſt cryſtal glaſs, made of the beſt kali from Alicant, and ſand vitrified together. To theſe are added tin and lead in equal quantities, calcined by a reverberatory fire: this is prepared by grinding and cleanſing it with aqua fortis; after which, waſhing it well in fair water, it is ground and pounded afreſh in a flint or agate mortar.—The *ruddy brown* is made with fæces of vitriol and ſalt-petre; or with iron ruſt well ground on an agate with oil of aſpic.—*Black* is made with perigeux, well calcined and ground with oil of aſpic, to which is added an equal quantity of the goldſmith's black.—The *yellow* is made by adding iron ruſt to the white.---*Blue* is made of the lapis lazuli, well purified and prepared with ſpirit of wine, and expoſed in a bottle five or ſix days to the rays of the ſun.---White copperas calcined makes an amber colour. Theſe colours, together with the two reds mentioned in a former note, by a diſcreet mixture and combination, ſerve for the compoſition of all the reſt. The colours are laid on with the tip or point of a pencil, as in miniature, with this only difference, that they uſe oil of aſpic inſtead of gum-water to dilute them. They ſet and poliſh their enamel, when laid on, by a reverberatory fire.

pointed; for when he came to apply for employ, he found it no eaſy matter to get proper recommendations: his maſter, the great Zincke's former employers, were many of them dead, and his own friends had almoſt forgot that he ever had a being: his dreſs was not ſuch as would prepoſſeſs any one in his favour; and his addreſs was not the moſt polite: his attending ſo cloſely for ſo many years to ſtudy, had prevented his allowing himſelf time to make proper obſervations on men and manners.

He was honeſt, but blunt in his converſation: he was ſenſible, but no ways communicative: he was good-natured, but captious for want of knowing more of the world: he was capable of doing great things in enamel-painting, but knew not which way to employ his talents to advantage: he could praiſe, but he could not flatter: he was a judge of merit, and ever willing to encourage it; but, unfortunately, ſeldom had it in his power: he could commend a brother painter's performances without envy, and recommend him to the notice of good judges with ſincerity.

I am ſorry I cannot conclude this narrative of Mr. Gamble with telling you, that he aroſe ſuddenly into the eminence he ſo much merited, and had ſo dearly earned; but this unfortunately was not the caſe: I knew him for ſeveral years ſtruggling with misfortune; and whenever he got employed, it was by the middling ſort of people, and at an under price, for want of his being better known.

I cannot now ſay whether Mr. Gamble is dead or living: it is ten years ſince I have ſeen him; and he may, for any thing I know to the contrary, with all his merit, with all his knowledge, be ſtill getting a precarious ſubſiſtence, by ſuch as have no taſte to diſtinguiſh what ſhare of praiſe, as as well as reward, is due to him.

I ſhould not have mentioned this Mr. Gamble to you on the preſent occaſion, but that I imagine him to have been the firſt diſcoverer of an improved method of making lake-red, for the uſe of enamel-painters.

He may, perhaps, be dead, and his ſecret may have died with him; yet is it worth enquiry: if he is ſtill alive, the world ought to be greatly obliged to him for his inceſſant

ſtudy and important diſcovery; and there is no doubt but that if he is paſt his labour, either through age or infirmity, he will be enabled comfortably to ſupport the few remaining years he may have to live.

Some may, perhaps, curiouſly aſk who this Gamble was, and what evidence can be produced of his extraordinary merit? Such I willingly refer to Mr. Hogarth, who formerly knew him well, and was no ſtranger to his good qualities, and great abilities and knowledge in his profeſſion. Believe me, GENTLEMEN,

Your very humble ſervant,

London, Oct. 3, 1763. A Friend to Merit, though obſcure.

To the Care of Mr. Newbery,
in St. Paul's Church-yard.

NUMBER XXXV.

A Letter to the Editors, reſpecting the moſt certain Tokens of a Coal-Mine being on an Eſtate.

GENTLEMEN,

I HAVE a little eſtate in a county where I do not know of any coal-mines being worked; yet, on looking over my land ſome years ago, I took it into my head that there were coals to be met with in it at no great depth. For my particular part, I acknowledge myſelf to be no great judge in the affair; you may, therefore, well imagine I would not ſet to work in digging a pit, till I could go upon a more certain foundation.

I know it is, in theſe undertakings, very neceſſary to diſburſe a large ſum of money before one can expect any returns: this I am able to do, provided there is any moral certainty of ſucceſs: I would, you muſt know, chuſe it ſhould amount to ſomething more than a bare probability; for ſhould I ſuffer any very heavy loſs, it might be of great hurt to my family.

Having ſtill my favourite ſcheme (for ſuch I own to you it is) in view, I, laſt ſummer was twelve months, made a journey

ney down into the north, in order to converſe with ſome of the ableſt overſeers of the coal-works, as well as to make my obſervations on the nature of the ſoil, ſtones, turf, &c. of the land where the coals were found; but in neither of theſe did I meet with the ſucceſs I could have wiſhed.

I met with many very ſenſible men among the overſeers of the works; but, under all the appearance of openneſs, I found they were too wiſe to be indiſcriminately communicative in their converſation; they were reſerved without appearing to be ſo; and they were frank, and ſpoke their minds on every ſubject, but on that which could be of any uſe to a curious enquirer.

When I found there was no good to be got this way, I made an agreement with a very intelligent workman, to give him a certain ſum of money, and bear all his expences, provided he would ſurvey my land, and undertake, on certain conditions, to open a pit for me if it ſhould be found expedient.

I cannot ſay I had any reaſon to complain of this man's behaviour, though I am ſtill as little ſatisfied as ever. He came to my houſe, and was with me a fortnight: we frequently walked over the land together; but his obſervations were ſo curſory, that I thought it impoſſible he could be a judge whether there were coals on the land or not: however, he aſſured me there were coals, though he could not exactly tell at what depth, and that he was ready to perform his contract, and open a pit if I thought proper to employ him.

I did not imagine, as I have already obſerved, that he had made obſervations ſufficiently accurate to enable him to judge of the matter; but in this I was miſtaken; for I was informed by my ſervants, that he was out every morning before ſun-riſe, and ſometimes for two or three hours even in the dead of the night.

I remonſtrated to him, how unreaſonable it was that I ſhould diſburſe ſo large a ſum of money, as I muſt neceſſarily do in the undertaking, on the credit of his ſingle aſſertion; and requeſted he would inform me, by what certain and unerring tokens, he could be ſo ſure there were coals in the

eſtate, and why he would not permit me to accompany him in his real obſervations, when I alone was the perſon who could be ruined by the experiment.

His anſwers were far from ſatisfactory; he told me it was impoſſible for him to impart his knowledge, as it would be in him a mere act of madneſs; that his livelihood depended on his ſecrecy on that head; and that all he could ſay was, that I might reſt aſſured there were coals on the eſtate.

As to his not chuſing to have me accompany him in his reſearches, in giving me a reaſon for his unwillingneſs, he paid me an unprofitable compliment, aſſuring me, that had I been as little intelligent and curious as moſt gentlemen are, he ſhould have had no objections to my being with him; but that he ſoon perceived, if I was preſent, he could not make himſelf a judge in the matter, without imparting to me a greater ſhare of knowledge than he could by any means conſent to do.

Here the affair now reſts. I diſmiſſed him with a preſent, beſides what I had agreed to give him, and he was ſeemingly perfectly ſatisfied.

I have ſeveral times ſince almoſt determined to ſearch for this hidden treaſure, but have been hitherto deterred by the great hazard of loſs. Many others have told me there were coals on the eſtate, but on the opinion of theſe I have no dependence.

Unreſolved, and wavering between two very oppoſite opinions, I took it into my head to write you this letter; the chief purpoſe of which is, to requeſt ſome of your intended correſpondents to give me their candid opinions in what manner I ought to act. The gentlemen in the north, and in Wales, where coals abound, will doubtleſs favour you with their frequent communications: it would be conferring a great favour on me, and many others in my ſituation, if ſome one judicious and intelligent particular among them would inform the world, through the channel of your collection, what are the moſt certain prognoſticks of coals being on an eſtate. I imagine ſome judgment may be formed from the nature of the foſſils and ſtones found near the ſurface; from the growth of the corn, graſs, and even the trees

on the land; from the nature and ſituation of the ſprings, and alſo from the nature and diſpoſition of the under ſtrata of earth.

It is very eaſy to form conjectures; but it is far from being ſo to make rational concluſions: this is my caſe; fond of the ſcheme, I every day almoſt conclude, from obſervations of my own, that it muſt be; and it often requires my whole ſtock of prudence, to prevent my embarking precipitately on ſo hazardous and expenſive an undertaking.

You muſt certainly know, Gentlemen, how uneaſy it is to be in ſuſpence in any important concern: let me entreat you, therefore, to give this letter a place in your intended publication before Chriſtmas: I may then hope, in the ſpace of a few months, to have my doubts reſolved; for the gentlemen who will read my letter in your collection, will not, like the man I employed, be prompted, by the motives of ſelf-intereſt, to conceal their knowledge; they will, I hope, on the contrary, be free to impart it, eſpecially when they reflect, that the more this kind of knowledge is propagated, the more will it be for the benefit of the community in general.

A land-owner is often poſſeſſed of a treaſure on his eſtate, which he knows nothing of: ſpecimens of it are every day thrown to the ſurface by the ignorant farmer's ploughſhare, without being noticed: this was the caſe ſome years ago in a farm belonging to a friend of mine; it was a poor hungry ſoil, and had been for a century before let under 50l a year: by mere accident a fine marle was diſcovered near the ſurface; the whole farm has been mended with it; and the ſame land now lets for 270l. a year, being divided into two ſeparate farms. I am,

GENTLEMEN,

July 25, 1763. Your humble ſervant,

A LONDONER.

NUM-

NUMBER XXXVI.

A Letter to the Editors, containing a ſhort Account of the Manufactory for making Cambricks, lately eſtabliſhed at Winchelſea *in* Suſſex.

GENTLEMEN,

YOU may not, perhaps, be diſpleaſed, that the public ſhould, through the channel of your collection, be made acquainted with an infant manufactory, lately eſtabliſhed at Winchelſea; I mean that for making the very fine linens called cambricks *, equal to thoſe which uſed formerly to be imported from France.

The public-ſpirited gentlemen who firſt ventured on this arduous, as well as hazardous undertaking, have reaſon to flatter themſelves, that their ſcheme will ſucceed, and turn out, not only to the great benefit of their country, but likewiſe to their own particular emolument.

The workmen that are now employed are chiefly French; but Engliſh children are daily bound apprentices to them, that the ſecrets and myſteries of the ſeveral branches may ſoon become our own.

From the ſpecimens already exhibited, there is great reaſon to conclude, that this manufactory will ſucceed: the eſtabliſhing it has already had a wonderful effect on this town and neighbourhood: every thing ſeems alive; and Old Winchelſea † is, as it were, ariſen like the phœnix out of its aſhes.

It was a very difficult matter to procure workmen ſkillful enough to manufacture this fine cloth; and it was ſtill more difficult to get flax proper for making yarn fine enough: yet

* The cambricks received their name from Cambray, a city in the French Netherlands, where great quantities of them are annually manufactured. N.

† Old Winchelſea, which was two or three miles from the ſcite of the preſent town, had eighteen pariſhes, and was of great conſequence. It was ſwallowed up by the ſea before the time of Edward the Firſt, in whoſe reign the preſent town was built. A.

yet both theſe difficulties are ſurmounted; the firſt by procuring proper hands from France, and from among the French priſoners, who were maintained here for ſo many years during the late war; and the latter by improving the culture of the flax they ſowed in the neighbourhood, in the following particulars.

It was neceſſary for them, that the fibres of the flax ſhould be fine, ſlender, and long, and that in a much greater degree than in the linen made in Ireland for ſhirting, ſheeting, &c. for this reaſon they proceed, in the culture of their flax, in a manner very different from the practice of the Iriſh farmers.

The land on which the plant is to be ſown muſt be very freſh *, but not rank, for that would defeat their intentions of having the fibres fine. If it will do without dunging, ſo much the better. For the crop to ſucceed well, the ſoil † of this land ſhould be reduced, by frequent tillage, as fine as garden-mould; the ſtones ſhould be all picked; and the land, whilſt it lies fallow, that is, before the ſeed is ſown, ſhould be kept as clear as poſſible from every kind of weed.

After every preparation is made, the beſt ſeed that can be procured is ſown very thick on the land; and if the weeds have been previouſly well deſtroyed, they will not afterwards hurt the crop. The plants ſtanding very thick run up ſlender without branching: but, in order ſtill to promote their growth, the planters ſtick the crop very full of long ſticks ‡; and on theſe they lay buſhes, which, ſhading the plants from the intenſe heat of the ſun-beams, make them run up very ſlender; and they yet enjoy air and warmth enough to prevent their ſtems, or ſtalks, from rotting by too much moiſture.

This

* The ſoil on which they grow their fineſt flax about Cambray, though good and fruitful, is dry; and this, perhaps, prevents the crop from being too rank. O.

† We ſhould be glad to be informed in what ſoil this very fine flax ſucceeds beſt. N.

‡ This method is alſo frequently practiſed in Ireland by ſome of the curious flax-growers who would have very fine yarn; and it is ſaid to anſwer that intention, by cauſing the fibres to grow long and ſlender. R.

This method may poſſibly by ſome of your readers be thought very troubleſome and expenſive, and not to be practiſed in large concerns; and this is certainly the truth: but we are then to conſider, that in theſe fine manufactures, a ſmall quantity of flax will go a great way; and that the planter's aim is to procure not a large crop, but a valuable one.

If the flax is of a proper growth for making very fine yarn, fit to be uſed in the Winchelſea manufactory, it fetches a great price; if, on the contrary, by the planters ſaving either pains or expence, it ſhould be too coarſe or ſhort, it will not there be ſaleable.

For the reaſon above recited, it is the planter's intereſt to be as nice as poſſible in the culture of this plant, and to procure every intelligence he can, that may enable him to improve the quality, not the quantity of his crop; for on that only, in a great meaſure, depends his future profit.

The manufacturing the yarn, by weaving it into linen, is very delicate work; and this is chiefly done in the fine ſtone vaults, with which this town abounds*; for the ſkillful workmen ſay, that the thread is ſo fine and delicate, that it will not, before weaving, bear the influence of the upper and freely circulating air; for, after being but a very little time expoſed to it, the yarn becomes unfit for the loom †, as it would be brittle, and in working break into ſhort lengths, as if it was rotten.

Before French cambricks were prohibited by act of parliament, the quantity of them conſumed in England was almoſt incredible: it is therefore to be hoped, that our ladies will not be leſs fond of this Winchelſea linen, (which equals the French cambricks in quality) merely becauſe it happens to

* The ſtreets of this town were all paved, and at right angles, ſo that they were divided into thirty-two ſquares or quarters. The ſtone-works of its three gates are ſtanding, though three miles aſunder over the fields; and in many places of the town are fine ſtone arched vaults for merchants goods, in which the weavers now work; and many ruinous materials of antient buildings, ſo buried, that the ſtreets have been turned into corn-fields, and the plough goes over the firſt floors of houſes. N.

† The common thread uſed by the ſempſtreſſes ſoon becomes rotten, and breaks in the working, unleſs it is carefully kept from the air. O.

to be manufactured in England. Foreign fripperies have been too long admired: it is time that a patriotic ſpirit of emulation ſhould take place among us, and that we ſhould vye with each other in our endeavours to promote the commerce of our native land.

On the quantity of commodities manufactured in this kingdom depends, in a great meaſure, the preſervation of the ballance of trade, which has been of late years ſo much in our favour: muſt we not therefore be infatuated, to prefer making any part of our apparel of foreign materials; particularly when every article, neceſſary for the dreſs of the rich or poor of either ſex, is as handſome, as good in its kind, if not better; as ſumptuous, rich, and elegant; and what would render it ſtill more acceptable to many, may be made as expenſive as any France, *&c.* can produce? Would the court ſet the example, nothing but the produce of Engliſh manufactories would be worn in the kingdom.

Much is due to the ſucceſsful endeavours of the ſociety to which you belong: the acting members have all along diſcovered a ſpirit of patriotiſm that is truly laudable, and will doubtleſs be of the greateſt benefit, as well to the preſent race of our countrymen as to our poſterity.

You have not, among your readers and correſpondents, one who wiſhes more that your collection may meet with the ſucceſs it merits, than,

GENTLEMEN,

October 6, 1763. Your humble ſervant,

A Man of SUSSEX.

NUMBER XXXVII.

Copy of a Letter from Mr. C——, *to Captain* H—— J——, *propoſing the finding ſome new Materials for making Paper, ſent to Dr.* Templeman, *to be communicated to the Society.*

SIR,

I Have, for ſome days paſt, been endeavouring to execute the commiſſion you gave me; but, believe me, Sir, there are no linen rags to be had for the price you fixed. It

is, indeed, but of late years, that they have been ſo dear, owing, I ſuppoſe, to the great encreaſe of their conſumption in the manufacture of paper. In reflecting on the vaſt quantities of paper annually exported from Holland, I am often at a loſs to think where they contrive to procure the rags with which it is all made: but they are an induſtrious people, and happy at reſources.—Paper * is made from linen rags, and linen is manufactured from the fibres of flax. Our paper then cannot be made till our linen is worn out, whilſt it continues to be compoſed of theſe materials. But might we not go a ſhorter way to work, and find out ſome vegetable, from which it would be worth while immediately to make paper, without its being previouſly ſpun into yarn, or wove into cloth? There are certainly many plants which would afford us materials for this purpoſe.—The reaſon that flax is preferred for making cloth is, becauſe its fibres are long and fine; but other plants which have not ſuch long and fine fibres, would do for paper after being properly prepared and bleached. I can almoſt venture to aſſert, that the *Urtica urens maxima vulgaris*, the common large ſtinging nettle, would anſwer the above purpoſe; and this is not difficult to procure: alſo the *Lupulus mas et fœmina*, the wild hop which grows in the hedges, and the common Kentiſh hops, would anſwer this purpoſe; theſe alſo are eaſy enough to be procured. Many other plants, which I do not juſt now recollect, might be added to the liſt.—Should this ſcheme be ever purſued, we ſhould ſoon be able to make all the paper at home that is conſumed in the kingdom, without importing any either from the Dutch or French.—You are not, I dare ſay, of the opinion of ſome, who would think this matter of little importance, as I need not tell you how very large a quantity of paper is annually conſumed in theſe iſlands: your own dealings will convince you of it at all times.—I have not at preſent leiſure to enlarge on this ſubject; I may, perhaps, take another opportunity of telling you more of my thoughts, eſpecially as I know you to be ſo much a friend to the encreaſing commerce of your native country.

Let

* This letter was read before a committee of the ſociety, on September 12, 1763.

Let me know as ſoon as poſſible, when it is you can procure me the fir ſeeds from Virginia, for I ſtill continue my reſolution of raiſing a plantation of them at ———. My oaks grow well, and thrive apace, owing, I believe, entirely to my manner of planting them; and I now find, by experience, that I can raiſe *Ananas*, or pine-apples, much cheaper and better than they are to be had in the London markets —Let me ſee you ſoon at this villa, where I now paſs all the hours I can ſpare from buſineſs: you will find me literally *ſitting under my own vine*, and feeding on the almoſt ſpontaneous fruits of the earth. Adieu.

S———n, Believe me very much yours,

June 10, 1763. J—— C———.

NUMBER XXXVIII.

Extract of a Letter from the Reverend Mr. *** to *** *****, Member of the Society for encouraging Arts, Manufactures, and Commerce; and by him ſent to Dr.* Templeman: *Containing Hints towards attaining a Method of ſtaining Elm of a fine Mahogany Colour.*

....YOU know very well, my dear Sir, in what manner I ſpend much of my time. I agree with you that philoſophical enquiries are very amuſing; but ſhould not we ſometimes endeavour to benefit the world by our reſearches, as well as entertain ourſelves? I have been for ſome months thinking of a novelty, at leaſt, in the arts; whether, if compaſſed, you would allow it to be an improvement, I cannot ſay.—The world of England has been, for ſome years paſt, running mad after mahogany furniture: an inferior artiſan thinks it a great misfortune, if he cannot have his two or three mahogany tables.—By this prevalence of taſte, or whatever elſe you pleaſe to call it, the wood is abſolutely, as I am very well informed, grown ſcarce in our Weſt-India Iſlands, ſo that a great deal of French mahogany

* This letter was read before a committee, on Sept. 12, 1763.

is yearly imported *, notwithſtanding which, the price, the dealers ſay, is of late very much riſen. What I would propoſe is, that the hard cloſe-grained Engliſh elm ſhould be ſubſtituted in its place. I know it will take a good ſtain; but I have not yet found out a method of giving it a true mahogany colour.—The wood, before it is ſtained, ſhould be prepared: perhaps the following manner may be as good as any; I have tried it, and find the wood receives and retains the colour much better than when unprepared.—When the wood has been cut into thin boards, I get it rough-planed with a common jack-plane; after which, I heat a large copper full of pond-water: when it boils, I put in my boards, taking care that they be entirely covered with water all the time they are kept boiling, which is to be, at leaſt, an hour; but the time is to be governed by the quantity of ſap they have in them. I then take them out of the water, and wiping them as dry as poſſible, with either a coarſe cloth, or any thing elſe that won't ſtain, I lay one of the boards on three or more pieces of thick deal laths: on this I place more pieces of laths, then another board, and ſo on till the number of boards amount to ten or a dozen: over all I put two or three heavy weights. They are then left to dry, which, being placed in this manner with a thorough draught of air, they do without warping: were it not for this precaution, they would after boiling, as I have often experienced, be very apt both to warp and ſplit. I muſt not omit obſerving, that whilſt they are drying they muſt be laid in the ſhade.—This method of preparing boards diveſts them almoſt entirely of their ſap, makes the wood much lighter, and more ſuſceptible of the impreſſion of colour, than it would be in its natural ſtate; and the ſtain you give it is more uniform.—When firſt I thought of this affair, I naturally imagined that a vegetable colour would be moſt proper to impregnate a vegetable ſubſtance withall; but I was herein, in ſome meaſure, miſtaken, for

* A great deal of mahogany, of a very inferior quality, has been lately imported from the Havannah: it is much ſofter and paler than the Jamaica wood, and will ſooner decay. N.

for ſome other matter was required to make it at all ſtable, and after all, much of it would waſh off with a wet cloth, and almoſt the whole of it would diſappear when the board was boiled a little while in pond water.

After this, I had recourſe to colours extracted from minerals, and muſt own, I here met with much better ſucceſs, yet ſtill did not gain my point. In this ſituation the matter now reſts, though I don't mean to give it up.—My reaſon for troubling you with this narrative is, that you may, if you think proper, communicate it to the illuſtrious ſociety of which you are a member. If they deem it worth their attention, they may perhaps advertiſe a premium for the diſcovery; and in that caſe theſe hints may be of uſe.

I have purpoſely avoided mentioning the ſeveral things I tried to ſtain the boards withal, becauſe the ſame articles, which failed with me, may poſſibly, by a different proceſs, ſucceed with ſomebody elſe, and it would be a pity to proſcribe ſo many probable materials from having a varied trial in other hands. Yet, after all, my own opinion is, that the colour will beſt be procured from ſome mineral extract, at leaſt, ſo my repeated experiments ſeem to declare.—Perhaps, if we can once gain our point in this firſt inſtance, we may hereafter attain a method of colouring ivory better than it has been hitherto done; and we may probably go ſtill a ſtep further, and be able to ſtain white marble with laſting colours, regularly diſpoſed: could we once do this, we ſhould have no occaſion to lament that canvas is of ſo periſhable a nature; for ſuch painters as were willing (which moſt are) to have their works reach remote poſterity would doubtleſs prefer marble. Some, indeed, have uſed copper; but they do not find it anſwer, the colours being remarkably apt to peel off.

NUMBER XXXIX.

A Letter to the Editors, on ſome Wine made in England, *of the Nature of the* Rheniſh.

GENTLEMEN,

READING, in the *Muſeum Ruſticum*, the Letter marked N° 17. Page 84. I find that his Grace the Duke of Norfolk makes annually a conſiderable quantity of good Burgundy wine, at Arundel Caſtle in Suſſex, from a vineyard he has planted there. I have, indeed, often heard of this curious vineyard, and am much ſurpriſed no gentlemen in other counties of England have followed ſo laudable an example.

Good wine may, doubtleſs, be made in England; for, as your correſpondent very juſtly obſerves, we had formerly many vineyards, and, conſequently, much wine made in this iſland*. If I miſtake not, ſome monaſteries were remarkable for making good wine.

Countries much colder than that we live in, produce good wines. Are we not particularly fond of that excellent beverage, which the banks of the Moſelle and Rhine produce? and even in the North of Switzerland do they not make wines, which ſerve well for home-conſumption, and might even with advantage be exported, had the cantons much foreign trade?

Some few experiments in the affair of planting vineyards have been made in England, but with little ſucceſs, and all entirely owing to a want of ſkill in the planters. That England might produce good wine is certain; his Grace of Norfolk's undertaking convinces us of it: but it may, perhaps, be urged, that what his Grace does is by mere dint of money; yet this I deny, for money cannot force nature, and a poor man, with equal knowledge, might raiſe vines as well, though not in ſo great numbers.

As

* See what has been ſaid in Number XII. page 64, and Number XVII. page 84, on the culture of the vine, &c. N.

As you have already given your readers one inſtance of the poſſibility of making wine of a good quality in England, I ſhall now furniſh you with another, perhaps equally curious, and more uſeful.

I had ſome weeks ago occaſion to call at the very ingenious and ſenſible Mr. Rocque's, of Walham Green. After ſome little time ſpent in converſation, he inſiſted on my drinking a glaſs of wine, and immediately produced a bottle of very good wine, which I took for Rheniſh. I drank ſeveral glaſſes of it with great reliſh; but as Rheniſh wine has a certain natural degree of acidity in it, which is apt to give me the cholic, I declined taking any more, till Mr. Rocque aſſured me that I need not fear its having that effect, as he had made it himſelf, and could warrant its being the pure genuine juice of the grape without mixture. Encouraged by this, I drank freely, without finding the leaſt inconvenience reſult from it, not even the ſlighteſt head-ach the next morning, which is always the conſequence of my drinking Rheniſh wine over night.

This induces me to think that his wine, which is only two years old, and will certainly improve with age, is more wholeſome than the Rheniſh of the taverns: I am certain it is more palatable, for I drank it without ſugar.

I am apt to think that the vine, producing the grape from which Mr. Rocque's wine is made, is better adapted to the temperature of the air in our climate, than the vine which bears the grape from which the rich Burgundy wines are expreſſed, and that a certain degree of agreeable acidity in the liquor, is, doubtleſs, more wholeſome to Engliſh conſtitutions, which are frequently ſubject to ſcorbutic diſorders.

I ſincerely wiſh Mr. Rocque would ſpare time from his numberleſs avocations, to give the public, through the channel of your collection, a detail of his method of managing his vines *, as well as the manner in which his wine

* We ſhould be greatly obliged to Mr. Rocque if he would favour us with this account, as it could not fail being extenſively uſeful, and would greatly elucidate this ſubject. N.

wine is made, and how it is ordered till it is fit to draw off into bottles.

Mr. Rocque is known to be very intelligent in every thing that reſpects either *horticulture* in particular, or *agriculture* in general: directions therefore for planting and managing a vineyard, coming from him, would have due weight with many, and I among others would be very glad to plant a vineyard that would give me an opportunity of drinking as good wine of my own making, as that I more than taſted at Mr. Rocque's.

Was I well enough acquainted with Mr. Rocque, to aſk him certain queſtions on this head, you might not, perhaps, have been troubled with this letter; but, as I am deſirous of information, and cannot, conſiſtently, get it in any other manner, I am content, and even pleaſed, the public ſhould ſhare with me the ſatisfaction I ſhall enjoy, if Mr. Rocque complies with this my requeſt.

The world is much governed by ſelf-intereſt: this, I acknowledge, was my primary motive for writing to you, or I might, perhaps, more properly term it ſelf-ſatisfaction, or ſelf-gratification; but be that as it will, if every degree of ſelf-intereſt was as much connected with the public good, it would be happy for the nation.

It cannot be doubted, but that if good wines could be made in England, much money might annually be ſaved, particularly what goes to France for the purchaſe of that dear commodity, for the greateſt part of which we pay hard money, or, what is ſtill worſe, unmanufactured wool, when the wines are bought by our ſmugglers.

High duties encourage ſmuggling, and, in fact, the government would be very little loſers by an abſolute prohibition to the importation of French wines; for I have great reaſon to think that, of the clarets, *&c.* drank in England, at leaſt two pipes out of three are ſmuggled, and pay no duty.

Much of this trade is, I am informed, carried on in the Iſle of Man, and from Guernſey, Jerſey, and Alderney, which lie convenient for the port of Southampton: I have even been told by ſome, who ought to be acquainted with the

the matter, that it is no unuſual thing for two or three particulars to import clarets in port caſks, and enter them at the cuſtom-houſe as Portugal wines, paying duty accordingly. This is, if true, certainly a great fraud on the government; but, if people will cheat the nation, and ſwear for that purpoſe through thick and thin, what can be done with them? The only remedy would be to puniſh them very ſeverely when detected; yet the misfortune is, that when this happens, a few preſents, properly applied to the palms of certain particulars, huſh all up; and the ſame iniquitous practices are ſtill followed, till they are again detected, and again huſhed up for a *reaſonable* gratuity.

Should we ever be able to raiſe vines in England that would bear grapes, yielding a rich light juice, fit for people of quality to drink, all theſe iniquitous proceedings would be at an end, and many men would eſcape daily perjury: it is ſcarcely neceſſary to mention how many perjure themſelves in a year at the cuſtom-houſe; to be able and willing to ſwallow a cuſtom-houſe oath, is almoſt become a neceſſary qualification for a clerk in certain branches: the effect this has on the morals of youth cannot but be evident.

I ſhall not enlarge any more on this very diſagreeable ſubject, but conclude with obſerving, that your collection of papers, ſuch of them at leaſt as have hitherto appeared, cannot but be approved of: for my particular part, I own they have given me great ſatisfaction; the ſubjects choſen by your correſpondents are moſtly important, and all in general uſeful. Wiſhing you great ſucceſs in your undertaking, I am,

London, Nov. 9, 1763. GENTLEMEN,

For the Editors, to the Care of Mr. R. Davis, *in* Piccadilly. Your moſt obedient ſervant, R—— M——.

NUMBER XL.

A Letter to the Editors, from a Member of the Society of Arts, relative to the Culture of Canary Seed.

GENTLEMEN,

I Have long wiſhed to be acquainted with the method in which the canary ſeed is cultivated: you may therefore well imagine I read, with ſecret pleaſure, a piece publiſhed

in your collection, and marked Number V. page 22. yet I own to you, though it gave me great pleaſure in the reading, my curioſity was far from being ſatisfied.

I could ſincerely wiſh your correſpondent had been more particular in his relation: I do not recollect that he has at all told us what ſoil it thrives beſt in; neither has he told us any other method of culture, but that which is practiſed by the inhabitants of Thanet, when they break up a lay for the purpoſe of ſowing it on freſh land.

I ſhould have been alſo glad to have known what manure agrees beſt with it, and how deep a coat of earth it requires; whether it is apt to lodge in a wet ſeaſon; and which is the beſt method of threſhing and dreſſing it. I could, indeed, mention many more particulars, which I ſhould be glad to be informed in, reſpecting the culture of this plant, and which I am the more deſirous of knowing, as I can get no intelligence on that head from Mr. Miller's Gardener's Dictionary. I have the edition of the year 1759, of that work now lying before me, in which I cannot find this plant mentioned above once. In treating of graſſes, under the head *Gramen*, Miller juſt mentions the order in which Ray has ranged them; and among the reſt I find the name only (*Gramen phalaroides*, the canary graſs) of this plant.

How Mr. Miller came to be guilty of ſo great an omiſſion, I cannot ſay: perhaps he was not well informed of its culture, and had had no experience of it himſelf. It is certainly a matter of ſome conſequence, as great quantities of it are annually uſed in London; and, as far as I can find by what your correſpondent RUSTICUS ſays, Mr. Miller might have had good information in every thing that related to this plant from ſome friend in Thanet; and he has doubtleſs correſpondents all over the kingdom; for he could not certainly have wrote ſo much on the ſubject of huſbandry, without almoſt a univerſal intelligence.

I deſpair not, in a future edition of the Gardener's Dictionary*, of ſeeing the culture of this plant treated of at large; but

* We have conſulted Mr. Miller's Gardener's Dictionary on this head, ſince the receipt of our correſpondent's letter, as much as our leiſure would permit, but do not find he has mentioned the

but hope, in the mean time, that ſome of your worthy correſpondents will give the public what intelligence they can in the matter. If Mr. Ruſticus is yet at Margate, he has a very good opportunity of gratifying me and many others: if he has left it, I hope ſome of the worthy gentlemen farmers in that neighbourhood will take the affair in hand.

I am, GENTLEMEN,

Nov. 1, 1763. Your humble ſervant,

To Mr. Newbery, *Preſent.* OBSERVATOR.

NUMBER XLI.

A Letter to the Editors, on the ſowing Horſe-Beans in the dry, gravelly, or chalky Loams in the Chiltern Country of Bedfordſhire.

GENTLEMEN,

HAVING an hour or two on my hands, as I hate idleneſs, I cannot, perhaps, better employ my time, than by writing you, for the uſe of the public, a letter on the important ſubject of agriculture.

I purpoſe at preſent treating only on one matter; that is, the methods followed in the chiltern parts of this county, in ſowing horſe-beans, or tick-beans, as we ſometimes call them.

It is very well known, that this plant loves a ſtiff clayey ſoil, rather inclining to be moiſt *; whereas the ſoils of the lands I talk of, are either a dry, gravelly, or chalky loam. This obliges us to vary much from the practices of the Eſſex and Middleſex farmers, who occupy heavy land: were we to purſue their methods, our crops of beans, in a dry ſummer, would be entirely parched up and loſt.

In ſtiff ſoils, that are retentive of moiſture, a little rain may do; but if we do not provide againſt a want of rain, our lands are over-run with weeds, and our crops ruined.

In order to ſecure ourſelves tolerable crops, we ſow our beans very thick, either in a broad caſt, and plow them in, or under furrow: we allow always five buſhels † to an acre.

the canary plant more than once, and that without giving any account of its culture: it may, however, have been arranged under ſome other title, which we may have overlooked. O.

* Mr. Miller obſerves, that it alſo loves an open expoſure.

† The uſual quantity in heavy land is about three buſhels. N.

By ſowing the land ſo thick the plants come up very cloſe; and though the earth was at ſeed time looſe and dry, yet the ſtalks grow up ſo near each other as to ſhade the land, preſerve the moiſture in it, and keep down the weeds *. There is ſeldom occaſion to hoe this crop, the weeds being moſtly ſtarved by the bean-plants; and, indeed, the expence is, in general, grudged, though it is certain, it would greatly encreaſe the produce of the land.

The great difference betwixt this method of huſbandry, and that practiſed by the farmers who ſow horſe-beans on ſtiff heavy lands, conſiſts in the quantity of ſeed we allow, that our plants may ſtand the cloſer; for many farmers in my neighbourhood think, that diverſe advantages are derived from this method. In the firſt place, as I mentioned already, it ſhades the land in a dry ſummer, and prevents the roots of the beans being parched: in the next place it chokes and kills the weeds; and finally they think it mellows the land, and prepares it excellently well for a crop of wheat.

Experience convinces them they are, in many reſpects, right; for they have often very large crops: I have myſelf met with great ſucceſs in this method of huſbandry, but do not now practiſe for reaſons I ſhall mention.

The ſoil of my farm is, for the moſt part, a light gravelly loam; and it was on this account, I followed the example of my neighbours in my bean-huſbandry: but, going a few years ago into Eſſex about ſome particular buſineſs, I obſerved, and have ſince practiſed, a much better method, which, however, I have ſince diſcovered, was far from being unknown in this county, or in Hertfordſhire. The method I mean, is planting beans with a dibble by hand, ſeed by ſeed.

This is now my method of practice; and I find it anſwer very well, and that it is not ſo expenſive as one would at firſt imagine.

This

* This method greatly differs from the principles of the new huſbandry, in which every plant is allowed a certain ſpace to ſpread its roots, and due culture is given it during its growth: were the farmers in the chiltern countries to adopt this method, it would, perhaps, be advantageous to them; for the frequent culture, either with the horſe or hand hoe, would ſettle the light earth to the roots, bring the plants forward, prepare the land well for a future crop, and diſpoſe the earth to receive all poſſible benefit from the dews, &c. in a dry ſeaſon. O.

This work may be done either by women or boys; and when they are a little uſed to it, they do their work with great expedition. I plant my beans in rows a foot aſunder, at three inches diſtance in the rows, allowing them no more diſtance on account of the nature of the ſoil of my land.

My chief reaſon for preferring this method is, that I thereby ſave three buſhels of ſeed in ſowing every acre; for I before uſed five buſhels, whereas, in this method, on my light land, two * are quite ſufficient: and this is, indeed, an object well worth attention, as horſe-beans are ſometimes, particularly at ſeed time, at a very high price.

In the next place, by this regular method of planting them with a dibble, I have an opportunity of hoeing betwixt the rows: this keeps down the weeds; and what is of much greater conſequence, it looſens the earth about the roots of the plants, diſpoſes it to be benefited by the dews and light rains, and gives a large portion of additional nouriſhment to the crop. Theſe then are my reaſons for preferring this laſt method.

But to proceed: when my field of beans is planted, I give the land a hearty ſtirring with a loaded long-tined heavy harrow: this breaks the clods whenever there are any on the land, pulls up the few weeds that have appeared, and ſettles the earth cloſe to the ſeeds, ſo that they vegetate the ſooner.

When this is done, I paſs the roller, not a very heavy one, over it, to lay it ſmooth and level; and I then harrow it once more with a very light harrow to looſen the ſurface a little.

When the plants are about two inches out of the ground, the land is well hoed with a hand-hoe; and juſt before harveſt, when the fruit is ſet, the field gets another good hoeing: if the ſeaſon is wet and following, I beſtow on my crop an intermediate, but ſlighter hoeing, juſt before the beans bloſſom, to keep down the weeds, which would otherwiſe ſometimes get a-head.

Some

* On a ſtiff ſoil, in this method, one buſhel of ſeed is quite ſufficient; and next to ſowing with the drill-plough, and uſing the horſe-hoe, this practice is to be recommended. R.

Some of my neighbours think my practice a very troublesome husbandry; but I find it answer very well, and in consequence recommend it all I can, to such as will listen to reason founded on repeated experience.

I find another great advantage from this method of cultivating horse-beans, which I have not yet mentioned; and that is, that the land is so well prepared by it for a succeeding crop of wheat, that I have often sown it on a single plowing with great success; and the land has been in better tilth, than I have often had it after a whole year's fallow.

I cannot, indeed, enough commend the practice which many very intelligent farmers have of late fallen into, of frequently sowing crops that require hoeing, as this, in fact, answers the purpose of resting the land; for the nourishment these plants require in their growth, in nothing hurts the land, when compared to the benefit it receives from the frequent stirrings it has during the same period *.

With regard to the hoeing of my beans, I never suffer my work to be slighted over: I employ strong labourers, furnish them with good tools, and my hoeing does the land at least as much good as a middling plowing; for the men cut deep, and stir the land to purpose. This I find the cheapest way of going to work; for I have frequently made the experiment, and ordered them on purpose to skim over a part of a field in the ordinary way, that I might see the difference: and great difference indeed there always was, much more than a person, who was not a judge of the matter, or who had not seen it, would imagine.

I find it necessary, after my beans are cut, to set up the bundles for some time to dry: but this I never do in the field where they grew, as it would sometimes be a means of preventing me from getting the land early enough in proper order for sowing wheat; therefore, as soon as my bean crop is cut and tied up, I carry them on to some upland dry pastures, where they are set up to dry, and I immediately plow up

* Our correspondent seems to have adopted, in a great measure, the principles of the new husbandry; we could wish he would try what success he would have in using the drill-plough and horse-hoe: he seems intelligent, and could not therefore be at a loss in making a proper use of them; very little instruction would set their advantages in a very clear light to him. E.

up the field where the beans grew, and give it at leaſt another plowing before I put my wheat into the ground.

I have not a great deal of time to ſpare, or you ſhould frequently hear from me; but having appointed a gentleman to meet me about ſome buſineſs at the inn where I now write at five o'clock this afternoon, and coming here at three, the reading of your propoſal, which I happened to have in my pocket, put it into my head to write this letter: if it ſhould be acceptable, it will give me pleaſure; if not, it has at leaſt anſwered the purpoſe of filling up a vacant hour of my time. I am, GENTLEMEN,

Wooburne, July 31, 1763. Your moſt humble ſervant,

To Mr. Newbery, *Bookſeller in* London, *for the Editors of the* Muſeum Ruſticum. T—— N——.

NUMBER XLII.

A Letter to the Editors, from a Gentleman in Hertfordſhire, *relative to the Culture of the Hog Pea.*

GENTLEMEN,

WE are very fond, in the county I live in, of ſowing grey peas, not only by way of changing our crops, but becauſe we imagine the culture they require is of great ſervice to the land, by keeping down the weeds, and bringing the ſoil to a fine tilth for future crops.

In our light lands we moſt of us prefer ſowing peas to beans, as the latter naturally require a ſtiffer ſoil, and do not give us ſuch large returns; neither is the haulm ſo good, as it will not ſerve for ſtover for our cattle in the winter, when we are moſt in want of it; but the pea-ſtraw is excellent for this purpoſe, being very nouriſhing and ſweet; and the cattle are very fond of it, as it agrees very well with them when given with diſcretion: it is much beſt when mixed with ſtraw.

All our cattle eat it almoſt with greedineſs, horſes, cows, and ſheep; but horſes that are often put into quick motion ſhould not be fed with it: it agrees beſt with draught-horſes. The grey pea, which we in general ſow in our fields, makes excellent

excellent food for our hogs, which fatten on them ſooner and better than on any other food.

We alſo give them inſtead of oats to our horſes; but in this matter we are very cautious, as it is neceſſary they ſhould thoroughly dry before the horſes taſte them; and, indeed, it is by much the ſafeſt way to have them firſt dried in a malt-kiln, when they become excellent provender, and will maintain the horſes under the hardeſt labour: another very particular reaſon for our farmers giving their horſes ſo many peas is, that they go much farther, and are cheaper food than oats in general are: on this account moſt of our oats are ſent to market.

On our chalky, ſandy, or light loams, we ſow our grey peas in the broad caſt, and plow them in, or elſe we ſprain them in under furrow. This method ſecures them a ſufficient covering, which they would not otherwiſe have if they were only harrowed in; but the crop would be ſubject to be ruined by the leaſt dry weather, which often happens after pea-ſeed time *.

In theſe light lands we love to ſow early, that the young plant may have all poſſible benefit from the ſpring rains, which bring them forward, and make them pod better, by being at the bearing time better rooted.

We ſow our peas in this manner on light lands with a ſingle plowing †, allowing often five buſhels of ſeed for an acre, when it is ſown in the broad caſt way; but three buſhels, or at moſt three and a half, are enough, if the ſeed is ſprained in by a man's hand after the plough: and this, indeed, is the beſt way of doing it, as it not only ſaves ſeed, which is often a matter worth attention, but the crop comes up in regular rows, and is eaſier weeded or hoed.

We generally ſow this ſeed in February for the reaſons above mentioned, contriving to have done before March: the heavy ſtiff lands, we always ſow laſt.

Peas

* The better tilth land is in when peas are ſown, the better will be the crop; they thrive better for this reaſon, on land that has borne firſt a crop of wheat, then another of barley: all the plowings both ſorts of corn had, are of benefit to the peas. *R.*

† For peas to be ſown after a ſingle plowing, the land ought before to be in good tilth, and well broke, or the crop will be indifferent. R.

Peas are, in general, very tender; but ſome of the hardy kinds will be, to all appearance, dead two or three times in a ſpring, and yet recover and bear a good crop.

Some ſow their grey peas in January; but this is not ſo ſafe a method, as we have often hard froſts in that month, whereas, after the firſt week in February, the froſts are ſeldom of long duration.

About a week after my peas are ſown, I give my land a rolling, my light land I mean, to ſettle the earth about the ſprouting pea; and, for this purpoſe, I generally make uſe of a tolerable heavy roller, for a light one does little ſervice. Light ſoils are porous and hollow; therefore they require preſſing, to lay their parts cloſer together, and keep out the chilling froſts, winds, and cold rains, which would otherwiſe, and frequently do, deſtroy the infant plant before it appears above ground *.

Some farmers are great ſlovens in their pea-fields, but I always allow my peas one or two hoeings, according as the ſummer is wet or dry, and ſometimes a weeding beſides; and this method I find it of infinite advantage to practiſe, as the ſucceeding crop, be it what it may, is always remarkably clear of weeds †, none of thoſe pernicious vegetables having been ſuffered to perfect their ſeeds, whilſt the pea crop was on the ground.

By theſe methods of practice, I get very good crops of peas from my light chalky loams; but I do not, in every reſpect, manage in the ſame manner on ſome ſtiff clayey land I have ‡.

On this ſoil I ſow my peas ſomewhat later, perhaps a fortnight; and I allow the land two plowings before I ſow my peas, that it may be looſened, and made as hollow as poſſible, being by nature too compact and cloſe. I here ſow peas in the broad-caſt way, and harrow them in; but I

* This practice of paſſing the roller over light, porous, and hollow land, is to be commended. E.

† If peas are ſown thick, they naturally keep down the weed, but if ſown in rows with any kind of intervals, hoeing is neceſſary. E.

‡ Sowing peas on ſtiff lands ſhould, if poſſible, be avoided; beans are much beſt for ſuch ſoils. N.

do not roll them, as it would be apt to knead the land, and form a cruſt on its ſurface, which would prevent the tender ſhoot of the pea from being able to make its way to the air.

I alſo allow leſs ſeed, at moſt three buſhels, often not much above two, for an acre; and this heavy land does not require ſo much weeding or hoeing, as the weeds are not here of ſuch ready and quick growth.

I have, as well as many farmers who live near me, yet another method of ſowing theſe peas, and that is on land that is of a middle nature betwixt light and heavy. My uſual practice then is to ſow half my quantity of ſeed broad caſt, and plow it in; after which I ſow the other half on the ſame land, and harrow it in with a long-tined harrow, in the ſame manner I do on my ſtiff lands.

Again, on ſome ſtiff ſpewy land I have, I ſow my peas in ridges, to keep them from too much moiſture; but when I ſow them this way, I am under a neceſſity of hooking inſtead of mowing my crop, which is an inconvenient and ſlow method, therefore, for the moſt part, I think, to be avoided.

Theſe then in general are the methods we purſue in this county in the culture of the grey pea: a corn which we are very fond of, and not without reaſon, as an intermediate crop.

We often, indeed, ſuffer by this our fondneſs; for if a dry ſummer comes on, the crops of peas in a whole diſtrict are ſometimes deſtroyed in a trice by ſlugs, which are very greedy of this food, on account of the particular ſweetneſs of its ſap.

We have no certain method of guarding againſt this dreadful evil, any more than againſt the ravages of game and field fowls, ſuch as pigeons, *&c.* which deſtroy great quantities of the ſeed immediately after ſowing: all we can do, is to allow ſuch a quantity of ſeed, as that, after all theſe loſſes, there will ſtill be enough left to ſupply a full crop; and this, indeed, is the principal reaſon of allowing, for our light chalky lands, ſo large a quantity of ſeed as five buſhels, which would be at leaſt as much again as would

be

be neceſſary, was it not for the ravages above mentioned.

This may not, perhaps, be the laſt letter you may receive from,

GENTLEMEN,

Your moſt humble ſervant,

Hemſtead, Sept. 15, 1763. A GENTLEMAN FARMER.

NUMBER XLIII.

A Letter to the Editors, containing a uſeful Caution with reſpect to the feeding of Ewes with Turnips or Coleworts.

GENTLEMEN,

THE two parts I have already ſeen of your collection, give me reaſon to think, that your papers on huſbandry will be of great uſe: you honeſtly own you depend on the public for ſupplying you with materials: every one therefore ſhould contribute his mite; and it is this conſideration induces me to become your correſpondent.

I have often improved my knowledge by other people's miſchances, and am therefore willing your readers ſhould be improved and forewarned by a misfortune which ſome years ago happened to me.

In ſome parts of our county of Eſſex we run greatly on the turnip and cole-ſeed huſbandry, reckoning a crop of either almoſt, if not quite, as good as a fallow for our land.

In the beginning of the winter, or latter end of autumn, we generally buy in our ſtock of ewes, for our lands are in general ſo good, it is not worth our while to breed. Theſe ewes we turn on our ſtubbles and fallows, and in the winter and ſpring often give them turnips or colewort.

It is now about ſix years ago ſince I turned a parcel of ewes into a turnip field, and another parcel into a field that was under rank colewort plants.

They fed greedily in both fields, and on examining them frequently I found they throve and grew fat apace: this gave me great ſatisfaction, as I imagined the ewes would ſoon be fit for ſale ſoon after the lambs were drawn off.

But when the yeaning time came on I had a diſmal proſpect; the turnips and coleworts were ſuch nouriſhing food, that the lambs had grown too big in the bellies of the ewes, ſo that many of them could not lamb without help: ſome lambs were even obliged to be cut away by pieces, by which means I loſt above forty lambs, and very near a ſcore of fine fat ewes, that would have been worth to me twelve or fourteen ſhillings a-piece.

I found on enquiry, that ſeveral farmers had felt, at different times, the like misfortune, but knew not to what cauſe to aſſign it; and I ſhould not myſelf ſo ſoon have diſcovered it, but that I cauſed ſeveral of the ewes that had died in yeaning, to be carefully opened; and, on inſpection, the cauſe of my loſs was apparent enough.

I have ſince acted with greater caution, and never give my ewes much fattening food till after they have yeaned; there is then no danger: on the contrary, either turnips or coleworts contribute to encreaſe their quantity of milk, fatten their lambs, and make the ewes themſelves ſooner fit for ſale to the butcher.

I have ſometimes, indeed, been obliged, through a ſcarcity of other feed, to turn my ewes, before yeaning time, into turnips; but then I am always careful to take them out about five or ſix weeks before the time they are to drop their lambs: by this means I eſcape the loſs I once ſuffered.

Many farmers have loſt ewes and lambs in this manner; but as every one does not know the cauſe of their misfortune, your publiſhing this ſhort letter on the ſubject cannot but be acceptable to your readers.

Making ſuch matters as theſe known, is like placing a buoy on a dangerous rock or ſhoal, which is a warning for the careful mariner not to ſteer his bark that way.

I am,

GENTLEMEN,

Eſſex, Nov. 4, 1763. Your moſt obedient ſervant,

A GENTLEMAN FARMER.

NUMBER XLIV.

A Letter to the Editors, from a Member of the Society of Arts, &c. containing a ſhort Eulogy of the late PETER WYCHE, *Eſq; Fellow of the Royal Society, and one of the Chairmen of the Committee of Agriculture, in the Society for the Encouragement of Arts, Manufactures, and Commerce.*

GENTLEMEN,

THE memory of men who have been valuable members of ſociety ſhould, with honour, be tranſmitted to poſterity.

Permit me to condole with you on the great loſs we have lately ſuffered in the death of Peter Wyche, Eſq; a man, in his life deſervedly beloved, at his death ſincerely lamented.

His merit was not like the blaze of a meteor, which ſhines for a moment, and is ſeen no more; but it reſembled the permanent light and warmth we are daily bleſſed with from the ſun, deſigned to give birth to, nouriſh and ſupport, whatever could be of real uſe to man.

A citizen of the world, his enlarged mind was not confined in the exertion of his great talents; he was prejudiced againſt no religion, attached to no narrow opinion, and an enemy to no country. Ingenuous, modeſt, and concealed merit, in whomſoever it was found, was always welcome to him; he cheriſhed it, he encouraged it, and recommended it to notice: he was a pleaſing and affable patron, and a candid and ſincere friend.

No man could be better adapted to perform the duties of his office, as chairman of a committee, than Mr. Wyche; he had great knowledge, and had had much reading and experience in matters that related to agriculture; he patiently heard what every member of the committee had to ſay, and as he had an excellent memory and power of retention, and a judgment capable of ſeparating the pure metal from the droſs and alloy, his opinion was often aſked,

and

and greatly depended on, in moſt determinations that were made.

He might, indeed, with great truth be called one of the fathers, and firſt promoters of the ſociety of arts, of which he was always a moſt uſeful member: to him alone is entirely owing the correſpondence which the ſociety carries on with our American colonies; to him alone do we owe the thought of cultivating *burnet*, as an artificial paſture.

To the hoſpital, inſtituted for the maintenance of expoſed and deſerted young children, he was a zealous friend; he gave a conſtant and religious attendance at the houſe; and ſacrificed a great deal of his time to promote the welfare of the poor helpleſs foundlings, which are the objects of that moſt excellent charity.

He was in his nature perſevering; ſeldom attempting any thing without bringing it to perfection.

Indefatigable in his reſearches and obſervations, he hid not the candle under the buſhel, but was of a remarkably communicative diſpoſition.

England owes him much, the ſociety more: his loſs is to be lamented as a public concern; yet his virtues are to be had in remembrance, and his good deeds conveyed to the lateſt poſterity.

As he was poſſeſſed of a very handſome independent fortune, his actions could not be ſwayed by any motives of ſelf-intereſt; influenced entirely by his general benevolence and love for mankind, and the particular affection he bore his country, he needed no other incitement for all the good he did.

The great qualities this friend of mankind poſſeſſed, had ſuch a thick veil of modeſty caſt over them, that they might eaſily paſs unnoticed by a common obſerver; but to a curious eye they appeared in a very different light: new and uncommon talents daily aroſe to view, and his great knowledge was, like the fragrance and beauty of the roſe-bud, diſcloſed by ſlow degrees. He was one of the very ſmall number of men whoſe converſation could never cloy a diligent enquirer into nature: in him we had a con-

ſtant opportunity of indulging the love of novelty, that paſſion ſo inherent to mortals; for ſo various and extenſive was his knowledge, that it could not eaſily be exhauſted, even by conſtant communication.

How unhappy is it for the world, that ſo few are poſſeſſed of that curioſity, which is ſo truly laudable, of ſearching, for the benefit of mankind, into the ſecrets of nature! and it is more particularly ſo, as by that means the good and uſeful qualities poſſeſſed by Mr. Wyche were thoroughly known only to a few; but the few who enjoyed ſo much happineſs knew how to ſet a proper value on them.

He lived not in vain; he was induſtrious, aſſiduous, and conſtant in his reſearches and enquiries: what others would have deemed a labour, became eaſy and habitual to him, nay, even neceſſary, as a kind of recreation and amuſement to his ever active mind.

His ideas were all methodiſed; and though he was a man of few words, he ſaid all that was neceſſary on every ſubject he took in hand: if he had not grace in his delivery, if his ſentiments were not clothed in the moſt elegant dreſs, yet did he never ſpeak without the ſtricteſt attention of his auditors; never was he attended to by them, but it muſt be their own faults if they did not receive inſtruction.

By what has been ſaid it is evident, Mr. Wyche poſſeſſed rather uſeful, than ſhining talents: he ſought not praiſe, but rather ſhunned it: to reflect that he had done his country ſervice, was to him reward ſufficient; he wiſhed not to be too much known; not through any indolence in his diſpoſition, but becauſe he was ſenſible that fame always carries with it a certain portion of envy; and of this paſſion he by no means deſired to be the object.

I could not ſay leſs reſpecting what I may call this good man's public character. In private life he was, to the full, as amiable: he was the tender huſband, the fond rational father, and the humane maſter.

He ſpent his days with a certain uniformity, which to moſt would have been irkſome; but to him, whoſe attention was not to be engaged by common objects, it was neceſſary;

neceſſary; he knew the value of time, and fully enjoyed all the pleaſures of contemplation.

In the latter part of his life, though no enemy to chearfulneſs in others, he was incapable of partaking of true unmixed joy. His ideas were generally pre-occupied by one melancholy object: this occaſioned that ſhade of ſorrow which often overſpread his countenance; and can we be ſurprized at it, when we reflect that its firſt cauſe was the death of his eldeſt ſon? a hopeful youth, endowed with every amiable quality, the worthy ſon of ſuch a father, a blooming branch from which there was every reaſon to expect a large ſtore of uſeful and delicious fruit: but the hopes of the world were blaſted, and the father's ſoul deeply wounded; he was reſigned, but he could not be chearful, under his loſs.

Though an enemy to no religion, he was very ſtrict in the practice of that of the church of England, which he profeſſed: he was a conſtant attendant on the public worſhip, and no leſs regular in his private devotions.

Being no advocate for faith without good works, his charity to the poor was extenſive, who loſt in him a friend and generous benefactor: the diſtreſſed objects, who often taſted his private bounty, now give ample teſtimony of their grief by their daily tears.

Mr. Wyche's goodneſs was no way oſtentatious, for his chief aim was to glide eaſily through life, almoſt unnoticed. His charities he concealed as much as poſſible; neither would the world have known how truly humane and beneficent he was, but for his conſtant enquiries after perſons in diſtreſs, on whom he might exerciſe his favourite inclination. He ſeldom ſmiled but when he had conferred a favour on the poor; and the innate, though almoſt inviſible pleaſure, theſe benefactions gave him, was all the reward, all the return he wiſhed for.

He was plain in his apparel, and temperate in his diet; and after paſſing a life, which may with great juſtice be exhibited, as an example, worthy of imitation to poſterity, he died October the 31ſt, 1763.

This

This great man retained to the laſt thoſe valuable talents which had made him ſo uſeful in life: a little more than a week before his death, he attended the committee as chairman, and, though indiſpoſed, he went through the buſineſs of the evening with his accuſtomed preciſion.

In his perſon, he was of a middle ſize; and frequent contemplation had given his countenance an air of ſeriouſneſs, which might eaſily, by ſuch as did not know him, be miſtaken for reſerve. His aſpect was mild, his manners gentle; and though he had not made the ſtudy of politeneſs any part of the buſineſs of his life, he was affable, good-natured, and engaging, in his converſation and addreſs. In ſhort, both in his public and private character, he merited and enjoyed the approbation and eſteem of all who were ſo happy as to be acquainted with him. If I have done juſtice to a worthy man's memory, I am content: of flattery I cannot be ſuſpected, as I wiſh not to be known.

Nov. 12, 1763. A BROTHER MEMBER of the SOCIETY of ARTS, *&c.*

NUMBER XLV.

A Letter to the Editors, from a Gentleman in Hertfordſhire, *recommending his Method of brewing good Brown Beer, in ſome Counties called Brown-Stout.*

GENTLEMEN,

I AM one of thoſe ſingular men, who love to keep up ſome remains of the old Engliſh hoſpitality in my houſe; and, for this particular purpoſe, I am never without a few hogſheads of good brown ſtrong beer in my cellar, for the benefit, not of my own immediate family alone, but of ſuch comers and goers as are worthy of it.

You muſt know, I have many years been particularly curious in the brewing of this beer, inſomuch that, if I am well,

well, I am generally copper-man myſelf, and ſuperintend the boiling part.

I have taken a fancy to communicate my method in this operation to the public, and thought I could not hit upon an eaſier method of doing it, than by writing you the account in a letter.

If you find no inconſiſtences, I hope inaccuracies will be overlooked.

I am very curious about the water I uſe, which is the ſofteſt I can get; and on this account I always take it from a clean neat pond, I have at the back of my houſe.

My time of brewing this beer is in March, which I reckon the beſt ſeaſon; therefore, in the beginning of that month, I make my preparations in the following manner.

The firſt thing I do is to take as much water as I ſhall want in all my brewings, (for I brew now for the whole year) and boil it in my copper. After it is boiled, it is put into large tubs for the purpoſe, and expoſed to the air, to cool and purge itſelf for at leaſt a week.

I then begin my firſt brewing, having previouſly procured a ſufficient quantity of the beſt brown high-dried malt, which is ground three or four days before it is uſed, that it may have time to mellow and diſpoſe itſelf for fermentation.

When a copper of water is heated ſo as to boil, about three quarters of a hogſhead is laded into the maſh-tub, and the copper immediately filled again, and made to boil. When the water in the maſh is come to ſuch a ſtate that you may ſee your face in it, I have, by degrees, nine buſhels of ground malt emptied out of the ſack into it: this is to be well maſhed, and ſtirred about with the rudder for near half an hour, till the malt is all thoroughly wetted, and incorporated with the water: another buſhel of malt is then lightly ſpread over the ſurface, and the whole being covered with the empty ſacks to keep in the ſteam, it is left undiſturbed for an hour.

At the end of the hour, the water in the copper being boiling, the fire is damped, and the water is left till you can

can ſee your face in it, after as much as is neceſſary is laded on to the maſh, till the whole together will yield, when it runs off, a hogſhead of wort; and this the workman is ſoon able to determine to a great nicety.

When this ſecond quantity of water is laded on the maſh, it is again well ſtirred and agitated, and being covered is kept quiet for another hour.

The firſt wort is then let out in a ſmall ſtream into the under-back, and another hogſhead of hot water is laded on the maſh, which, after being well ſtirred with the rudder, is again covered, and ſuffered to reſt for two hours.

In the mean time the firſt wort is returned into the copper, and ſix pounds of fine brown ſeedy hops are put into it, being firſt rubbed betwixt the hands. A briſk fire is then made under the copper, till the liquor boils, which is continued till the hops ſink, after which the fire is damped, and the liquor ſtrained into the coolers.

When it is come to be only as warm as milk from the cow, ſome yeaſt, or barm, is mixed with it, and it is left to work till all the ſurface appears in curls: it is then all ſtirred, and well mixed together with a hand-bowl, and again left to work: this ſtirring with the bowl is repeated three times, after which it is tunned, and left to work in the hogſhead: when it is nearly done working, the caſk is filled up and bunged, but the vent-hole is left open.

When managed after this manner, the beer I am writing about will keep for years, but it will be good drink the ſucceeding harveſt.

As to the ſecond wort, which I mentioned above, it is ſet by for the next brewing, to be uſed in manner following.

For my ſecond brewing, as far as wetting my maſh, I proceed in the ſame manner as at firſt; but afterwards, inſtead of water, I heat the ſecond wort of my firſt brewing, and lade it on my maſh, the new wort by this means acquiring a very conſiderable addition of ſtrength and ſoftneſs.

The ſecond wort of this ſecond brewing I make with water, and ſave it to form the firſt wort of my third brewing, and ſo on for as many brewings as I chuſe.

I muſt obſerve that I take off a third wort from my firſt brewing, which I heat, and lade on my maſh of my ſecond brewing, after taking off the ſecond wort; and by this means, out of two brewings, I get, beſides, a hogſhead of very good mild beer.

I do not pretend that my method of brewing, above deſcribed, is better than any other; but I am well convinced it is no bad way, as every body likes my beer, which, though high-coloured, is as clear as rock-water, and muſt be wholeſome, as it is made of the pure and genuine malt and hops, without any other unwholeſome mixture to adulterate it.

I ſhall be glad to ſee this account ſpeedily inſerted in your *Muſeum Ruſticum*, and I may perhaps, now and then ſend you a line or two, for I find, by your propoſals, you would be glad of an extenſive correſpondence. I reſt, for the preſent,

Your moſt obedient ſervant,

Hoddeſdon, Nov. 8, 1763. M.

NUMBER XLVI.

A Letter to the Editors, on the Culture of Turneps.

GENTLEMEN,

PERHAPS there never was a greater improvement in agriculture, than the practice of ſowing turneps as food for cattle: the counties of Norfolk, Suffolk, and Eſſex, are the places where this huſbandry is practiſed in the greateſt perfection.

In the laſt-mentioned county I live, and hold no inconſiderable quantity of land, and have, beſides, a little farm or two of which I am owner.

I have many years ſown turneps on my land, and find it a great improvement, inſomuch, that I heartily wiſh the knowledge of this culture was propagated more than it is over the whole kingdom.

I ſhall give you, for the public benefit, a few maxims, which may perhaps be of ſervice, and the more ſo, as I know them to be both uſeful and profitable.

Land cannot be brought into too good tilth for ſowing turneps: they require a deep, looſe, well-wrought mould *; and to effect this, diſcreet plowing and harrowing is the beſt way. I ſay diſcreet, becauſe one plowing, properly timed, is worth three that are out of time. It is a maxim in huſbandry, that ſome land cannot be plowed too much; but we ſhould add, at proper ſeaſons and intervals, or an ignorant farmer might ruin himſelf, and yet think he had followed the directions that were given him.

A light land requires leſs plowing, as well as leſs nicety in the times of plowing, than a ſtiff heavy ſoil; and it is alſo ſooner brought into good tilth: two well-timed plowings will often do it; whereas a clayey ſoil will require three or four, before it is brought into order.

An early plowing will greatly forward the getting a ſtiff ſoil into order: the month of April ſhould be the lateſt that ſuch, when intended for turneps, ſhould be turned up. It may then lie till the beginning of June, when it ſhould be harrowed down with loaded harrows to break the clods, and immediately croſs-plowed: about a fortnight after this it

* Mr. Miller obſerves, that the ſoil propereſt for turneps is a light, ſandy, loamy earth, not rich; for in a rich ſoil they grow rank, and are ſticky; but if the ſoil is moiſt, they will thrive better in ſummer, eſpecially in freſh land, where they are always ſweeter than upon an old worn-out, or a rich ſoil. He ſays, he has ſeen the roots of the green-topped turnep, which were more than a foot diameter, boiled, and were as ſweet and tender as any of the ſmalleſt roots. This we readily believe, as having often eat this large field-turnep in the country, and it always proved ſweet and good. They do not, in general, grow ſo large as thoſe Mr. Miller mentions. That turneps are ſweeteſt on undreſſed freſh land, is an undoubted fact; yet will they thrive extremely well on rich manured land, and be very proper for fatting cattle, though not, perhaps, quite ſo good for the table: this ſcores of farmers, in Norfolk and Suffolk, can teſtify; for, where ſo many turneps are annually ſown, were they ever ſo nice, it would be impoſſible to find freſh land for every crop. Fortunately there is little occaſion for this nicety. N.

it ſhould be plowed for the laſt time, and immediately croſs-harrowed and ſowed out of hand with the turnep-ſeed pretty thick, and ſcratched with a light harrow to cover the ſeed.

Light lands, as I ſaid before, may do very well with two plowings, one in the ſpring, and the other juſt before ſowing at Midſummer *.

I look upon it, that turnep-ſeed cannot well be ſown too thick, for it ſeldom all comes up, and, of what does get above ground, much is often deſtroyed by the fly, and ſlug; ſo that the plants ſometimes, though the ſeed was ſowed thick, require but little thinning by the hoe. In fact, I think it better at firſt to beſtow an additional quantity of ſeed, than to have to ſow two or three times over, as I have been often obliged to do, till I practiſed this method of ſowing thick, which generally ſucceeds very well with me †.

The beginning of July is the time in which I for the moſt part ſow my turnep-ſeed: in this matter the grand affair is to hit it off, ſo that the turneps do not grow ſticky or ſpongy before the winter, and yet are forward enough in their growth to reſiſt the froſts, &c. and be fit food for the cattle in the winter, or in the ſpring.

To have a good and profitable crop of turneps, it is abſolutely neceſſary they ſhould, at proper times, be hoed, not only to kill the weeds, but alſo to thin the plants, and ſet them out at a proper diſtance.

The

* The common ſeaſon for ſowing turneps, ſays Mr. Miller, is any time from the beginning of June, to the middle of Auguſt, or a little later; though it is not adviſeable to ſow them much after; becauſe, if the autumn ſhould not prove very mild, they will not have time to apple before winter; nor will the roots of thoſe which are ſown after the middle of July grow very large, unleſs the froſt keeps off long in autumn.

† The quantity of ſeed generally allowed for an acre is one pound; but we think our correſpondent's method worthy of being recommended, and that two pounds, at leaſt, ſhould be ſown, and this the ſooner, as it is a cheap ſeed: it is an eaſy matter to hoe up the ſupernumerary plants, if they all come up and eſcape the fly. N.

The proper time for the firſt hoeing is, when they have put forth their fourth leaf, and the ſecond hoeing ſhould be in about three weeks afterwards; twice is, in general, enough, unleſs a very following rainy ſeaſon ſhould come on, when it will be proper to take the advantage of the firſt fine ſun-ſhine weather, to give them a third hoeing this, indeed, is often neglected, but I always found it pay well, by the thriving condition it put my crop in *.

As to the diſtance at which the plants ſhould ſtand one from the other, that muſt be regulated by the ſize of the turnep; but it ſhould be never leſs than one foot, nor is there occaſion for its being more than two: about ſixteen or eighteen inches is a proper diſtance for the common turnep we generally ſow about me †.

If the ſoil, on which the turneps grow, is light and dry, the moſt profitable way is to feed your ſheep on them in the ſpot where they grew; but if the ſoil is heavy and ſtiff, it is beſt to have them pulled, and carried in tumbrils on to ſome dry paſture, or on any dry field you want to mend; for was you to feed them on the land, one half of them, at leaſt, would be rolled in the dirt, trodden under foot, and ſpoiled.

Land cannot be too rich, or too well dunged, for bearing turneps ‡; and this will bring them forward, and make them

* The chief advantage of this third hoeing was probably derived from ſtirring the earth about the roots of the plants, which, conſequently, gave them a greater facility of extracting the nouriſhment, neceſſary for their growth, from the earth. As to the weeds, after two good hoeings the turneps will generally have over-topped them. T.

† It is a great fault to leave the turnep plants too cloſe at hoeing: the diſtance will, as our correſpondent obſerves, depend on the kind of turnep; but a great deal will alſo, in this matter, depend on the nature and quality of the ſoil: if it is very rich light land, the turneps will grow to an amazing ſize, and the plants ſhould, in that caſe, be left at near two feet diſtance: if, on the contrary, the ſoil is ſtiff and poor, the turneps will be but ſmall, and the plants may be left at about a foot aſunder. N.

‡ This is the Norfolk maxim; but Mr. Miller thinks freſh unmanured land is beſt. See a former note, in which this matter is handled ſomewhat more at large. N.

them eſcape the fly better; for when once the leaves become rough, the fly does not chuſe to touch them: it is therefore certainly beſt to encourage them in their growth, and bring them as ſoon as poſſible out of danger.

When my young crop of turneps have come up, and I have been fearful of the fly, I have frequently ſown over them wood aſhes, and ſometimes ſoot *: theſe have been of great ſervice, eſpecially if gentle rains followed, as neither the flies nor ſlugs choſe afterwards to touch them. But I muſt obſerve, that this is no ſafe remedy, if the weather is dry and hot, for aſhes being of a hot nature, will then be apt to burn up the crop.

As to the ſlugs, the beſt way of deſtroying them in dry weather is with a light roller: this cruſhes and kills them, and does the crop ſervice, eſpecially if it is light land; for it preſſes the particles cloſer, ſo that the moiſture in the earth is not ſo ſoon exhaled by the heat of the ſun; conſequently, the young turneps do not ſo ſoon ſuffer by a continued drought †.

It

* Mr. Miller obſerves that there have been many receipts for preventing the fly taking turneps, but that few of them deſerve notice. He mentions, however, two or three which he had tried with ſucceſs. The firſt was ſteeping the ſeeds in water with flour of brimſtone mixed, ſo as to make ſtrong of the brimſtone. Another was ſteeping it in water, with a quantity of the juice of horſe-aloes mixed; both which have been found of uſe. He adds, that the ſowing of ſoot, or tobacco-duſt, over the young plants, as ſoon as they appear above ground, has alſo been found very ſerviceable; in ſhort, whatever will add vigour to the young plants will prevent their being deſtroyed by the fly, for theſe never attack them till they are ſtinted in their growth.

† Mr. Miller takes notice of another enemy to a crop of turneps, which is the caterpillar, which very often attack them when they are grown ſo large as to have ſix or eight leaves on a plant: we ſuppoſe he means in the neighbourhood of London, as this accident is ſeldom known in the country. However, he adds, that the ſureſt method of deſtroying theſe inſects is to turn a large parcel of poultry into the field, which ſhould be kept hungry, and turned in early in the morning: theſe fowls, he ſays, will ſoon devour the inſects, and clear the turneps. The nature of this remedy convinces us, he muſt mean, that caterpillars infeſt turneps near the metropolis, where they are

ſown

It is ſcarcely neceſſary to obſerve that dry weather is beſt for hoeing turneps in, as then neither the weeds nor the turneps that are cut up are apt to grow again.

In light gravelly or ſandy ſoils, the ſeed of turneps may be deeper covered than in ſtiff clayey land: in the firſt, it may be pretty well harrowed in; in the latter it ſhould only be ſlightly ſcratched with a very light ſhort-tined harrow, or even only buſh-harrowed; as by that means they will ſooner appear above ground, be ſooner out of danger, and thrive better afterwards, the apple of the root growing almoſt entirely out of the ground, the whole nouriſhment being collected by tap-root, and by the horizontal roots, which iſſue from it on all ſides.

The quantity of ſeed to be ſown on an acre ſhould be from two to three pounds *, according to its goodneſs; and many uſe equal quantities of old and new ſeed, thinking this method beſt; for the new ſeed comes up firſt, and if the fly takes it, the old ſeed in a day or two ſucceeds, and generally fares better.

If a crop of turneps fails, either through any defect in the ſeed, or by the ravages of the fly or ſlug, it is uſual for the farmer to ſow the ſame land again; and this, if there is occaſion, he repeats two or three times, till at laſt he ſecures himſelf a crop. For the reaſon above mentioned, it is eſteemed beſt to ſow early, as by that means there will be time, if the firſt crop fails, to ſow another.

Turnep-ſeed is very apt to take damage from wet, if it is not covered as ſoon as ſown: without this precaution it

ſown only in ſmall plots, compared to the extenſive tracts that are annually ſown for feeding cattle in Norfolk, and the adjacent counties. We imagine a farmer, who ſows, perhaps, fifty acres of turneps, would be puzzled to find a ſufficient quantity of poultry to clear his crop of the caterpillars, ſhould it chance to be infeſted with them: when it is the caſe, ſome other more effectual remedy muſt be found for him at leaſt. N.

* Even on our correſpondent's principle of ſowing thick, perhaps, two pounds of ſeed, if it is good, will be found ſufficient for an acre of land. A fourth part of that quantity would do, was it not for the many dangers to which the crop is expoſed. N.

will ſprout prematurely, malt, or mould: by too early a germination the ſeed is apt to burſt.

When peas are ſown on a rich mellow earth, they are apt to grow rank: in this manner they cover the ground, keep the moiſture in it, raiſe a kind of fermentation in the ſoil, and make it hollow and porous; inſomuch that when the crop has been off, turneps have been harrowed in without plowing, and have thriven amain: but there is danger in purſuing this practice without great caution. More I reſerve for another occaſion. I am,

GENTLEMEN,

Aug. 14, 1763. Your humble ſervant,

An ESSEX LANDHOLDER.

NUMBER XLVII.

A Letter to the Editors on Sheep-Shearing, and on the Rot in Sheep.

GENTLEMEN,

A Favourable reception of this letter may be a means of continuing me your correſpondent.

I have had ſome experience in what relates to ſheep, and am not unwilling to impart ſome of the knowledge I have been many years accumulating.

I ſhall at this time chiefly confine myſelf to ſhearing. Contrary to the opinion of many farmers, I think early ſhearing is by much to be preferred on many accounts: ſome defer doing this work till at or after Midſummer; but this is to be avoided, as very bad conſequences often enſue. By this late ſhearing, the maggot has an opportunity of breeding in their ſkins; and this frets them in ſuch a manner, that they often pine away and loſe all their fleſh.

This is eaſily prevented by early ſhearing; and I, for my particular part, if the weather is any thing tolerable, generally do this work about the middle of May, and ſometimes the beginning of that month: by this method the new growth of wool has time to get a-head, ſo as to ſecure the ſheep from the attack of the fly. It is true, that at this time

of the year the weather is often cold, and chilling rains fall, which might endanger my new-ſhorn ſheep, was no farther care taken of them: but this danger I always guard againſt, by waſhing my ſheep, after ſhearing, with ſalt water taken from the Medway *: this is of great ſervice in killing any vermin that may harbour cloſe to their ſkins; and beſides this advantage, the penetrating quality of the ſalt ſo warms this animal's maſs of blood, that it is a great means of preſerving it from many diſorders to which it is fatally ſubject; ſuch as the gripes, ſcab, red-water, rot, *&c. &c. &c.* This, I ſay, has been my practice ever ſince I have lived in Kent; but before that time, when I was not within diſtance of the ſea or Medway to get ſalt water from thence, I always made a brine of a proper ſtrength with common ſalt and ſoft water, and applied it to the ſame uſe with equal benefit, though it coſt me, to be ſure, ſomewhat more. When my ſheep have ſores, either by the bite of flies, or by ſcratching, *&c.* I find the beſt remedy to be that which is commonly in uſe, *viz.* a little tar applied to the wound: many, if you aſk their advice, will, by way of ſhewing their judgment, preſcribe to you complicated mixtures, which have no other merit but being more expenſive: but, be aſſured, the more ſimple the remedy, the ſpeedier the cure.

Many farmers ſuffer great loſſes by buying ſheep that are rotten; for which reaſon, every prudent man ſhould, when he buys a lot of ſheep, agree with the ſeller, that he ſhall warrant them ſound for a month at leaſt: this would prevent many heavy loſſes, and be a means of guarding honeſt men from being impoſed on. If ſheep are the leaſt inclinable to the rot, the beſt remedy is to drive them directly into a dry upland paſture.

* In Kent, near Hiam-kill-marſh-prieſt, about ten miles from Graveſend, they waſh their ſheep in the following manner. There being creeks that are muddy when the tide is down, but when the ſea flows are deep in water, they tie ropes to three or four ſheep of the flock, and draw them over, the reſt willingly following; and then the ſaid ſheep are drawn over again in the ſame manner; and by the time they have ſwam over ſeven or eight times, which is as often as they well can do in a tide, they will be well waſhed. *Liſle's Obſervations in Husbandry.*

I have mentioned above, that I ſhear my ſheep ſooner than moſt of my neighbours *; but I ſhould alſo have obſerved, that I always ſhear my fat wethers firſt †, as they are beſt able to bear the cold; and I reſerve my poor ſheep till laſt, as the cold and chilling rains pinch them more than the others ‡.

As I have mentioned the rot, I ſhall juſt take notice of a remedy which I have often tried with ſucceſs: it is very cheap, and is almoſt always to be procured, which is a great recommendation. I take a quantity of rue leaves, which I bruiſe well, and then preſs out the juice: to this juice I add an

* The author quoted in the laſt note, in treating of ſhearing, has the following obſervation. "I never uſed," he ſays, "to "ſhear till the Monday before Midſummer-day; but I now "(anno 1714) find I was in an error in ſo doing; and that, as my "keeping is very good, by which means the wool grows the "larger, and heats the ſheep the more, and their fleſhineſs "being ſuch as to bear the cold the earlier in parting with "their fleeces, I ought to begin to ſhear the firſt week in June; "and the ſheep would not only thrive much the better, when "the load of their wool was gone, but their new wool would "alſo have more time to grow againſt Wayhill fair, which "would make the ſheep look more burly." Sheep when ſhorn have better ſtomachs, for the heat of the wool takes away their appetites.

† Mr. Liſle, in his obſervations, ſays,—Mr. Weedon and Mr. Cowſlade, of Woodhay, uſually ſhear and waſh their fatting ſheep by May-day: the reaſon they give for it is, becauſe their incloſures are very ſmall and conſequently too hot, and therefore their fatting ſheep need to have their coats off ſo much the earlier, and they thrive the better for it.

‡ We cannot but in general approve of the early ſhearing of ſheep, beginning with the fatteſt; but no certain day can with reaſon be fixed for doing this work; for our ſeaſons differ ſo much in various years, that next year, in the beginning of May, the weather may be ſo warm as to be very proper for the work, and in the following year, the middle of the ſame month may, on account of the cold, be too ſoon to begin. The beſt regulator for this work, as well as many others, would be the ſtate of vegetation, from repeated obſervation of ſome particular tree or plant, on a particular ſoil and expoſure; for to bring plants to a certain ſtate, requires always a certain degree of heat, and this is ſooner or later, according to the ſeaſon. Every work of huſbandry, inſpring at leaſt, might be regulated in the ſame manner, and that to great advantage, for nature is an unerring guide. N.

an equal weight of ſalt * ; and when any of my ſheep are in great danger of being rotten, I give them a table ſpoonful of this once a week, and if they are not ſo bad, once in ten or twelve days: this I have experienced to be of exceeding great ſervice, and have recommended it to ſeveral, who have had equal ſucceſs: it is an excellent preſervative, and ſhould, in fact, always be given to new-bought-in ſheep; it may preſerve them in health if they are in danger, and can do them no harm let them be ever ſo well.

Perhaps the matters contained in this letter may not be ſo curious as you could wiſh; yet will it at leaſt convince you of the inclination I have to commence your correſpondent; and in this ſentiment I ſhall, I believe, continue as long as my letters meet a good reception: ſhould I be, on the contrary, thought rather troubleſome, a ſmall hint will prevent my repeating the offence.

You may aſſure yourſelves I approve of the plan you have laid, or I ſhould not have thought of furniſhing materials towards the ſtructure: ſuch as they are, accept them with good will from, GENTLEMEN,

Kent, Oct. 15, 1763. Your humble ſervant,

To the Editors of the Muſeum Ruſticum *in* London. G. K.

NUMBER XLVIII.

A Letter to the Editors, on the Subject of Blights, with a Hint towards a Remedy.

GENTLEMEN,

MANY are at a great loſs to know from whence come the vaſt number of caterpillars, which are every ſpring found on the fruit-trees, and in the nurſery-grounds, about London. In ſome years they abound to ſuch a degree, as

* The large proportion of ſalt in this medicine, which we doubt not may be very good, brings to our recollection a letter on the wholeſomeneſs of ſalt to cattle, read before the committee of agriculture, and inſerted in this collection: it is marked Number XIX. page 97, to which we refer the reader. Perhaps if ſalt was laid for ſheep, it might be of great ſervice to them. O.

as to be a very great nuiſance to the gardeners: in dry ſeaſons they do much miſchief, and deſtroy large quantities of fruit. Many remedies have been at different times preſcribed, but few of them have been attended with any ſucceſs at all in the application.

Some burn horſe-litter under the trees, or to windward of them; others drench the branches with water in which tobacco-duſt has been ſteeped; and many uſe water alone to waſh them.

Theſe ſeveral methods may poſſibly do ſome good, but they are far from being either certain or general remedies.

When the inſects have ſeiſed on a fruit tree, it aſſumes a withered ſickly appearance; the leaves ſhrivel and change their colour, and the tree is ſaid to be blighted.

This blight * is generally thought to be either brought, or greatly promoted, by eaſterly winds; and indeed it is, in ſome

* Mr. Miller obſerves, that how ſpecious ſoever the conjectures concerning blights may appear at firſt ſight, yet when duly conſidered, they will be found far ſhort of the true cauſe. He ſays blights are often cauſed by a continued dry eaſterly wind for ſeveral days together, without the intervention of ſhowers or any morning dew, by which the perſpiration in the tender bloſſoms is ſtopped, ſo that in a ſhort time their colour is changed, and they wither and decay; and if it ſo happens that there is a long continuance of the ſame weather, it equally affects the tender leaves; for their perſpiring matter is hereby thickened and rendered glutinous, cloſely adhering to the ſurface of the leaves, and becomes a proper nutriment to thoſe ſmall inſects, which are always found preying upon the leaves and tender branches of fruit-trees whenever this blight happens: but it is not theſe inſects which are the firſt cauſe of blights, as hath been imagined by ſome, continues Mr. Miller, though it muſt be allowed, that whenever theſe inſects meet with ſuch a proper food, they multiply exceedingly, and are inſtrumental in promoting the diſtemper; ſo that many times, when the ſeaſon proves favourable to them, and no proper care hath been taken to prevent their miſchief, it is ſurpriſing to think how whole walls of trees have ſuffered by this infection. The beſt remedy for this, adds our author, is gently to waſh and ſprinkle over the trees, from time to time, with common water, (that is, ſuch as hath not had any thing ſteeped in it); and the ſooner this is performed (whenever we apprehend danger) the better; and if the young and tender ſhoots ſeem to be much infected, waſh them with a woollen cloth, ſo as to clear them, if poſſible, from all this glutinous matter,

ſome meaſure, probable; for at this time of the year, about London, any curious and attentive obſerver may ſee, on almoſt all the hedges, &c. multitudes of ſmall webs containing neſts of caterpillars; and on carefully opening theſe webs, thouſands of minute inſects may be ſeen in cells: they are now about the ſize of a middling pin, and about the twentieth part of an inch long; on being held to the warmth of a fire, they quit their torpid and inactive ſtate, and aſſume a briſk and lively motion.

I had an opportunity, within theſe few days, of ſeeing many of theſe webs, or neſts of inſects, plentifully ſcattered on almoſt all the hedges about Kenſington, Chelſea, Brumpton, Fulham, Hammerſmith, Walham-Green, and North-End, where nurſery-grounds abound: theſe lie in ſtore to ſend forth their voracious numbers, in the ſpring of the year, to devour the fruits of induſtry; and the evil ſeems to have got to ſo great a head, that the gardeners deſpair of getting rid of theſe devourers, as they know of no certain method by which they can attain that deſirable end.

Talking to a very intelligent man on this ſubject, he told me, that, in his opinion, one very principal reaſon why the environs of London are ſo particularly peſtered with theſe blights, is, there being ſuch large quantities of pruned trees and cut hedges there; for all vegetables become more or leſs of a ſickly diſpoſition, when the courſe of the ſap in them is checked either by accident or deſign; and trees in this ſickly ſtate * are well known to be more ſubject to blight, than

matter, that their reſpiration and perſpiration may not be obſtructed; and if we place ſome broad flat pans or tubs of water near the trees, that the vapours exhaled from it may be received by the trees, it will keep their tender parts in a ductile ſtate, and greatly help them: but whenever this operation of waſhing the trees is performed, it ſhould be early in the day, that the moiſture may be exhaled before the cold of the night comes on, eſpecially if the nights are froſty; nor ſhould it be done when the ſun ſhines very hot upon the wall, which would be ſubject to ſcorch up the tender bloſſoms.

* Mr. Miller ſeems to border on this opinion in the following paſſage on this ſubject: his words are as follows. "That "blights are frequently no more than an inward weakneſs or "diſtemper in trees, will evidently appear, if we conſider how "often

than others that are vigorous, flouriſhing, and unwounded by the pruning-knife or ſhears.

One circumſtance reſpecting this blight is very remarkable, which is, that to the weſtward of London the effects of it decreaſe by inſenſible degrees, inſomuch that at forty miles diſtance very little of it is ſeen; and at a hundred miles and upwards, about Bath, Briſtol, Wells, Bridgewater, &c. they know not what it is; and this is alſo the caſe

" often it happens, that trees againſt the ſame wall, expoſed to " the ſame aſpect, and equally enjoying the advantages of the " ſun and air, with every other circumſtance which might render " them equally healthy, yet very often are obſerved to differ " greatly in their ſtrength and vigour; and as often we obſerve " the weak trees to be continually blighted, when the vigorous " ones in the ſame ſituation ſhall eſcape very well, which muſt " therefore, in a great meaſure, be aſcribed to their healthy conſtitution. This weakneſs therefore in trees muſt proceed " either from a want of a ſufficient ſupply of nouriſhment to " maintain them in perfect vigour, or from ſome ill qualities in " the ſoil where they grow; or, perhaps, from ſome bad quality in the ſtock, or inbred diſtemper of the buds or cyons, " which they had imbibed from their mother-tree, or from miſmanagement in the pruning, &c. all which are productive of " diſtempers in trees, and of which they are with difficulty " cured. Now if this is occaſioned by a weakneſs in the tree, " we ſhould endeavour to trace out the true cauſe: firſt, whether " it has been occaſioned by ill management in the pruning, " which is too often the caſe; for how common is it to obſerve " peach-trees trained up to the full length of their branches " every year, ſo as to be carried to the top of the wall in a few " years after planting, when, at the ſame time, the ſhoots have " been ſo weak, as ſcarcely to have ſtrength to produce their " flowers? but this being the utmoſt of their vigour, the " bloſſoms fall off, and many times the branches decay, either " the greateſt part of their length, or quite down to the place " where they were produced; and this, whenever it happens to " be the caſe, is aſcribed to a blight. Others there are who " ſuffer their trees to grow juſt as they are naturally diſpoſed, " during the ſummer ſeaſon, without ſtopping of ſhoots, or diſburdening their trees of luxuriant branches; by which means " two, three, or four ſhoots, ſhall exhauſt the greateſt part of the " nouriſhment of the trees all the ſummer, which ſhoots, at the " winter-pruning, are entirely cut out; ſo that the ſtrength of " the tree was employed only in nouriſhing uſeleſs branches, " while the fruit-branches are thereby rendered ſo weak, as not " to be able to preſerve themſelves."

caſe with the inhabitants of the more weſtern parts in Devonſhire, Somerſetſhire, Cornwall, &c.

This is at leaſt a circumſtantial evidence of its coming from the eaſt; but whether the eggs of the inſects are brought in the current of the eaſterly winds, or whether theſe winds are only particularly favourable to their hatching, and the growth of the inſect, I ſhall not pretend to determine.

Where valuable fruit-trees are infeſted with this blight, they may, with a little trouble and expence, be in a ſhort time cured, by fumigating them with brimſtone ſtrewed on lighted charcoal: this effectually kills them; but the workman muſt obſerve to get to windward of the tree, as the fumes, both of the brimſtone and charcoal, are very offenſive and pernicious *.

I ſhould be glad that ſome more eaſy method than even this could be found out of deſtroying theſe neſts of vermin; and I deſpair not, but by means of ſome of your many correſpondents it will ſoon be effected, when I doubt not, but they will give you an immediate opportunity of communicating it to the public, in your very uſeful and excellent collection.

I hope, for the benefit of theſe iſlands, that you will be enabled regularly to continue your publication, as it is, in fact, not only the moſt proper repoſitory for fugitive pieces on the ſubject of huſbandry, but is alſo the only channel of intelligence, by which the good methods of practice of one part of the kingdom may be communicated to another.

I am

London, Nov. 14, 1763. Your humble ſervant,

A LOVER of AGRICULTURE.

To the Care of Mr. Robt. Davis,
Bookſeller in Piccadilly.

* See in general what Mr. Miller ſays on this ſubject, in his Gardener's Dictionary, under the title Blights.

NUMBER XLIX.

A Letter to the Editors, from a Hertfordſhire *Farmer, recommending Soot as a proper Dreſſing for Meadows.*

GENTLEMEN,

AS your collection is intended for a kind of a channel of intelligence, from one part of the kingdom to the other, in matters of huſbandry, *&c.* I take this firſt opportunity of troubling you with a few of my thoughts.

Many farmers, in ſome counties, are at a great loſs to find a proper dreſſing for their meadows: to ſuch I would recommend the uſe of coal-ſoot, than which nothing can be more profitable and advantageous; its effects will be very viſible for upwards of three years, during which time no other manure need be laid on the land.

Coal-ſoot * is of a very warm refreſhing nature: it cheriſhes and gives nouriſhment to the graſs; it kills the noxious inſects that inſeſt the crop, and protects it from the effects of froſts, ſnows, and chilling rains; and what is ſtill of greater conſequence, it will kill the moſs that ſo often abounds in ſour meadows †.

I muſt not, however, fail noticing, that ſoot will not have theſe good effects if the meadow land ſhould be ſo damp as to require draining: in this caſe cuts muſt be made acroſs it, in proper directions, previous to the laying on the coal-ſoot, which would otherwiſe be of little ſervice.

All rank weeds ſhould be carefully grubbed up from among the graſs, and that before they have perfected their ſeeds; without which precaution, in point of time, the work would be to do over again.

The

* Soot is an excellent dreſſing for green wheat in February: it ſhould be ſown by hand, in quantity ſufficient to blacken the land. This is frequently practiſed in Leiceſterſhire, and many other counties. It is of a warm nature, therefore it does moſt good on cold, moiſt, clayey ſoils. R.

† The winter is the proper ſeaſon for ſowing ſoot on meadow ground. R.

The general quantity I lay on an acre of meadow land is twenty-five looſe buſhes: more, I find to be rather prejudicial, and leſs does not anſwer all the purpoſes we are to expect from this excellent manure.

The beſt time for applying this dreſſing, I take to be the beginning of the ſpring: about February is the time I generally lay it on*; the gentle rains which then, for the moſt part, enſue, waſh it into the land, and the following crop is greatly benefited by it. This is very ſoon viſible from the fine deep verdure which the graſs aſſumes.

Some of my meadow-land is particularly ſubject to be damaged by froſts, ſnows, *&c.* on this I generally lay the proper quantity of ſoot in the beginning of November; and ſometimes, if the winter is likely to be ſevere, I venture to allow thirty buſhels to an acre, which in other caſes I never do.

Having myſelf found great benefit by uſing this coal-ſoot as a manure for meadows, I am willing my brother farmers ſhould know it, that they may have it at their option to adopt the practice, if they approve of it.

It will be very well worth their while, provided they can have it at a reaſonable rate, which they may, above twenty miles from London, by land carriage, and whereever there is a communication by water, though at almoſt ever ſo great a diſtance.

Other great towns alſo, where ſea or pit coal is burnt, may ſupply the farmers with it; but the misfortune is, that where it is in the greateſt plenty, they leaſt know the uſe of it.

Great care, however, ſhould be taken to get it genuine and good, the *merchant chimney-ſweeper* frequently, to encreaſe the bulk, mixing fine ſifted coal-aſhes with it: this is a great fraud, but may eaſily enough, with proper care

* We have already mentioned we think it beſt done in winter, and that for this reaſon, *viz.* that the firſt rains after the froſt breaks will waſh it into the land, and warm and cheriſh the roots of the graſs; whereas, when it is laid on in the ſpring, it may by its great heat affect the blade and heart of the graſs, and for a time, at leaſt, ſtop the progreſs of its vegetation. R.

and circumſpection, be diſcovered, for the aſhes make the ſoot gritty, and encreaſe its weight in a very ſenſible degree.

Before I conclude this letter, I muſt give my brother farmers a caution; which is, that they never lay the ſoot on land in windy weather, as not only great part of it will be loſt and waſted, but the remainder will be ſo unequally diſpoſed as to do rather more harm than good.

Should any thing elſe occur to my recollection, which may be of ſervice to the lovers of agriculture, and proper to be inſerted in your collection, I ſhall not fail communicating it to you, being firmly of opinion that I ſhall thereby merit ſomething of my country; and, indeed, I ſincerely wiſh this ſame motive would prompt every one, capable of doing it with propriety, to write you the reſult of their experience, in the ſubjects of which your work is to conſiſt. I am, GENTLEMEN,

Your moſt humble ſervant,

Hertfordſhire, Aug. 1, 1763. A FARMER.

NUMBER L.

A Letter to the Editors, on the Proportion betwixt the Iriſh *and* Engliſh *Acre.*

GENTLEMEN,

GIVE me leave to point out a miſtake, in page 94, of your *Muſeum Ruſticum & Commerciale*, (the piece marked Number XVIII.) as it may tend to lead your farming readers aſtray in a capital point. The Iriſh acre is there ſaid to be to the Engliſh, as 21 to $16\frac{1}{2}$; whereas, the diviſions of both acres being of the ſame name, and in the ſame ratio, and the Iriſh pole, long-meaſure, being 21 feet, or ſeven yards; the Engliſh pole, long-meaſure likewiſe, but $16\frac{1}{2}$ feet, or $5\frac{1}{2}$ yards, and the feet and yards in both kingdoms equal; the Iriſh ſquare pole muſt be to the Engliſh ſquare pole, conſequently the Iriſh acre to the Engliſh, as the ſquare of 7 to the ſquare of $5\frac{1}{2}$, or as 49 to $30\frac{1}{4}$, or, in round numbers, as 196 to 121.

I am, GENTLEMEN,

To the Care of Meſſ. Your moſt humble ſervant,

Davis *and* Reymers, Holborne. D. C.

NUMBER LI.

A Letter to the Editors, on the Nature and Uſes of Peat-Aſhes, and the ſeveral Crops to which they may be profitably employed as a Manure.

GENTLEMEN,

THE more general a manure is in its uſes, of ſo much the more value is it to the farmer; and, of all ſorts of manures, perhaps aſhes agree with the greateſt variety of ſoils and crops: aſhes*, therefore, ſhould, one would imagine, be had in univerſal requeſt, for the purpoſe of dreſſing land; but the misfortune is, no great plenty can be procured, and the few that are to be got fetch a large price: this deters the farmer from making uſe of them often as manure.

I muſt, however, except one ſort of aſhes, which are on all accounts valuable; I mean peat or turf aſhes: theſe are in moſt places eaſy to be procured, coſt no great matter, and have a wonderful effect on almoſt every ſoil and crop. You may believe what I ſay, as I have had many years experience of their good qualities.

The ſulphurous and ſaline particles with which theſe aſhes abound, have a moſt happy effect in promoting vegetation; and, if uſed with diſcretion, the encreaſe procured by them is truly wonderful.

I ſuppoſe few of your readers will be at a loſs to know what peat or turf is, moſt people having ſeen a kind of it burnt as fuel.

The ordinary peat is dug from wet bogs and moraſſes; but that which is of a much ſuperior quality and virtue in its aſhes, is dug from moory wettiſh lands which will bear cattle: as to the peat that is pared from the ſurface of heaths

* All kinds of aſhes have their ſeveral degrees of excellence; yet ſome are much to be preferred to others; and perhaps peat-aſhes, on account of the quantity of ſalts and ſulphur they contain, are at leaſt as good as any. R.

heaths and commons, for firing for the poor cottagers, the aſhes of it are of very little value, when compared with thoſe above mentioned.

Peat is found in moſt low grounds that lie betwixt hills, eſpecially if timber has formerly ſtood on the ſpot. It lies at various depths, being often near the ſurface, and ſometimes ſix, eight, or ten feet deep, having a ſtratum of black moory earth over it, ſuch as is the ſoil of many of our low meadows near the banks of rivers: it ſometimes even lies under a bed of gravel.

Peat may be burnt for the ſake of procuring its aſhes for manure all the ſummer ſeaſon: as ſoon as it is dug, ſome of it is mixed in a heap regularly diſpoſed with faggot-wood, or other ready-burning fuel: after a layer or two of it mixed in this manner, peat alone is piled up to complete the heap. A heap will conſiſt of from one hundred to a thouſand loads.

After ſetting fire to it at a proper place, before on purpoſe prepared, it is watched in the burning, and the great art is to keep in as much of the ſmoak as poſſible, provided that as much vent is left as will nouriſh and feed the fire.

Whenever a crack appears, out of which the ſmoak eſcapes, the labourer in that place lays on more peat; and if the fire ſlackens too much within, which may eaſily be known by the heat on the outſide, the workman muſt run a ſtrong pole * into the heap in as many places as is neceſſary to ſupply it with a quantity of freſh air. When managed in this manner, the work goes on as it ſhould do. It is to be noticed, that when once the fire is well kindled, the heavieſt rain does it no harm whilſt it is burning.

Having procured a ſufficient quantity of aſhes, the farmer's next care ſhould be to apply them properly to uſe; and to do this, he muſt be made well acquainted with the nature of the manure he is to lay on his land.

All

* This peat ſeems to be burnt much after the manner in which charcoal is made; though there cannot be ſo much delicacy neceſſary in the operation. R.

All aſhes are of a hot, fiery, cauſtic nature; they muſt therefore be uſed with caution. With reſpect to peat-aſhes, almoſt the only danger proceeds from laying them on in too great quantities at improper ſeaſons.

Nothing can be better than peat-aſhes for dreſſing low damp meadows, laying to the quantity of from fifteen to twenty Wincheſter buſhels on an acre: it is beſt to ſow them by hand, as they will then be more regularly ſpread. This work ſhould be done in January or February at lateſt, that the aſhes may be waſhed in towards the roots of the graſs by the firſt rains that fall in the ſpring.

If they were ſpread more forward in the year, and a ſpeedy rain ſhould not ſucceed, being hot in their nature, they would be apt to burn up the graſs, inſtead of doing it any ſervice.

It is to be remembered, that the damper and ſtiffer the ſoil, the more peat-aſhes ſhould be laid on it; but in graſs-lands the quantity ſhould never exceed thirty Wincheſter buſhels, and on light warm lands leſs than half that quantity is fully ſufficient.

On wheat-crops theſe aſhes are of the greateſt ſervice, but they muſt be laid on with the utmoſt diſcretion. Were they to be ſpread in any quantity before the winter, after the ſowing the corn, they would make the wheat too rank, and do more harm than good *; was the ſpreading this manure, on the contrary, deferred till the ſpring, the corn could not poſſibly during the winter ſeaſon be benefited by it. After due reflexion and repeated experience, my method of management in this caſe is as follows.

About the beginning of November, before the hard froſts ſet in, I ſow on every acre of my heavy clayey wheat land about eight Wincheſter buſhels of theſe aſhes; on my lighter warmer lands in wheat, I ſow only four buſhels at this ſeaſon.

This winter-dreſſing is, I imagine, of great ſervice: trifling as the quantity may ſeem, it warms the roots of the

* This ſeems, by our correſpondent's account, to be upon the whole a critical manure, but may with proper care be of great ſervice. N.

the plants, brings it moderately forward, preſerves its verdure, and diſpoſes it to get into a growing ſtate the firſt fine weather after Chriſtmas.

About the latter end of February, or the beginning of March, on the above mentioned heavy lands in wheat I beſtow another dreſſing of aſhes, by ſowing of them on every acre eight buſhels more: on my light lands, in this ſecond dreſſing, I allow only ſix buſhels.

Theſe aſhes laid on in the ſpring are of the greateſt ſervice, without any probability of danger: if rain falls within a few days after the dreſſing is laid on, it is waſhed in, and has a happy effect on the ſucceeding crop, co-operating with the manure that was laid on in November: if, on the contrary, dry weather for any long continuance ſucceeds, the firſt winter-dreſſing has its full effect, and the quantity laid on in the ſpring is in fact ſo ſmall, that there is very little probability of its burning or hurting the crop.

This method has ſucceeded very well with me, and I have no reaſon to think it can fail with any one elſe.

This excellent manure is, I find, of great uſe in the turnep-huſbandry on many accounts, particularly as it much contributes to preſerve the young crop from being devoured by the fly *.

When I ſow my turneps, before I harrow in the ſeed I have eight buſhels of theſe aſhes ſtrewed by hand on every acre, and when the plants ſhew their firſt leaves above ground, I ſow on every acre four buſhels more: by this management my crops ſeldom fail, when at the ſame time ſome of my neighbours ſow their turnep-land three or four times over.

But one of the principal advantages derived from theſe aſhes I have not yet mentioned, which is the very great ſervice they are of to every kind of artificial paſture.

Saintfoin receives great benefit from this manure, and ſo does clover, ray-graſs, and trefoil, provided it is laid on with diſcretion: the proper ſeaſon is about the month of February: the quantity muſt be regulated by the nature of the

* The hot cauſtic taſte of the aſhes may very probably render the young leaves of the turneps diſagreeable to the fly. N.

the crop and ſoil; but, in my opinion, it ought ſcarcely in any inſtance to exceed thirty Wincheſter-buſhels. Clover, with the help of this manure, grows with great luxuriance, inſomuch that I have often had two large crops of hay from the ſame field in a year, and good autumn-feed afterwards.

But the effect of it is moſt ſeen in tares or vetches, and on them it is I beſtow moſt of this manure, as they will bear it, being a very ſucculent plant. I had laſt ſummer a crop of tare-hay that was aſtoniſhing, by the help of theſe aſhes, being above three large loads on an acre*. The field contained ſix acres; it was a dryiſh loam, and not very rich. In the beginning of February I cauſed ten buſhels, Wincheſter meaſure, to be ſtrewed on each acre: immediately after the firſt rains had waſhed them in, the ſame quantity was in like manner ſpread, and about the middle of March I beſtowed on each acre ſix buſhels more for the laſt dreſſing. I am fond of dividing my entire quantities, thinking my crops are thereby leſs expoſed to the danger of being burned, and the manure is beſides more gradual and laſting in its effects.

My tares came on amazingly, but they run chiefly to haulm, which was what I wiſhed, not having any deſire of ſaving the ſeed, but intending to make the crop in hay: my only fear was, that it would rot on the ground before it was in a proper condition to cut; but this I luckily eſcaped, by the ſoil being tolerably dry, and by the fineneſs of the weather. It was ſo heavy in the ſwarth, that I was obliged to pay an extraordinary price for mowing it.

I have obſerved above, that I was fearful my tares would have rotted on the ground before they were fit to cut: this was owing entirely to the invigorating quality of the aſhes, which by their ſalts, *&c.* promoted the growth of the plants even to luxuriance.

* We ſhould imagine theſe aſhes would be of great ſervice as a dreſſing for buck-wheat, when it is intended to be plowed-in as a manure, becauſe the ranker and more luxuriant it then is, the better. N.

Before I well knew the great fertilizing quality of theſe aſhes, I loſt by improper management a fine three-acre piece of hog-peas. I laid on this field, ſoon after the peas came up, threeſcore Wincheſter buſhels of theſe aſhes at one dreſſing: this brought them forward a great pace, but at harveſt I found, to my grief, I had ſcarcely any corn, for I had overdone it in laying on ſo much, and the peas were run all to haulm *.

Ever ſince this accident I have declined uſing them as a common dreſſing for my peas; and this I have been the more induced to do, as, in ſeveral little experiments I have ſince made, I have found it extremely difficult to apportion the ſeveral quantities which ought to be laid on various ſoils when ſown with peas; for the quantity that has one year ſucceeded very well with me, has the next, owing to the difference of ſeaſons, on the ſame ſoil, in another part of the ſame field, totally diſappointed me: ſo that, for peas, I eſteem it a very critical manure, therefore very cautiouſly to be uſed.

The effects of this manure will be viſible at leaſt three years, and does not, like ſome others, leave the land in an impoveriſhed ſtate, when its virtues are exhauſted and ſpent.

Peat-aſhes are not ſo certain a manure for barley and oats as for the winter-corn; for as theſe are quick growers, and occupy the land but a few months, this warm manure is often apt to puſh them forward too faſt, and make them run too much to coarſe ſtraw, yielding only a lean immature grain. Oats, however, are not ſo apt to be damaged by it as barley.

To get a good crop of barley, I often ſow it after turneps, which have had two light dreſſings of aſhes, in the manner above deſcribed.

When the turneps are fed off, or drawn, I give the field, if the ſeaſon permits, a good plowing: if they were fed off, the land will want no more aſhes; but if they were drawn, and either carried into another ground to feed ſheep, or given to

* Peas rather require a ſweet ſoil unimpoveriſhed, having a natural fertility, than one greatly mended and enriched by manure. A.

to my ſtall-fed oxen, I ſtrew on each acre, after this plowing, five Wincheſter buſhels of aſhes, leaving them to be waſhed in by the firſt rain. In this manner I let the land lie till I give it the ſecond and laſt plowing before it is ſown. The manure has by this management the deſired effect, and the barley generally produces full and heavy ears.

When I ſow my barley after turneps, I give the land only two plowings, becauſe the ſoil was before much looſened by the hoeings beſtowed on the turneps; but in other caſes I am fond of allowing three, and ſometimes four plowings to my lands deſtined for barley; and I generally find it anſwer very well; for many years experience has convinced me, that upon a fine tilth barley always thrives beſt, and yields moſt: in fact, the crop is almoſt always governed by the condition of the land, and a well-tilled ſoil is leſs expoſed to danger in an untoward ſeaſon.

Peat-aſhes approach, in their effects on the ſeveral crops on which they are laid, to coal-ſoot; but two thirds of the quantity that is uſed of ſoot, will be ſufficient of the aſhes, as they are, in a much ſtronger degree, impregnated with a vegetative power; and they are, beſides, in moſt places, eaſier procured in quantities, and at a cheaper rate.

It may poſſibly be objected, that this manure requires great nicety in the application: I allow it does; yet every intelligent farmer *, who knows the nature and qualities of the ſoils of his ſeveral fields, will ſoon be able, with great preciſion, to judge how much he ought to lay on each acre: his chief care at firſt ſhould be not to overdo it; for therein conſiſts the principal danger; though, after all, theſe aſhes will, at the worſt, unleſs laid on in very great exceſs indeed, only occaſion the inexperienced farmer the perhaps partial loſs of a ſingle crop; for the ſucceeding year they will, in all probability, have a very ſalutary effect on the land, and ſometimes even repay the preceding loſs.

When the error is in the exceſs, it is very eaſy for a farmer to avoid falling into it; for, independent of every other con-

* It ſhould ſeem, the farmer ought to uſe this manure at firſt with great caution, till repeated experiments have made him well acquainted with the nature and condition of his land. O.

ſideration, the ſole view of leſſening his expences will, it is imagined, ſufficiently induce him to be attentive to this particular.

When peat is burnt for the ſake of its aſhes in ſummer time, it is neceſſary that ſome care ſhould be taken to defend them from the too powerful influence of the ſun, air, dews, rain, &c. or great part of their virtue would be exhaled and exhauſted. If the quantity of aſhes procured is not very great, they may be eaſily put under cover in a barn, cart-lodge, or hovel; but large quantities muſt neceſſarily, to avoid expence, be kept abroad; and when this is the caſe, they ſhould be ordered as follows.

A dry ſpot of ground muſt be choſen; and on this the aſhes are to be laid in a large heap, as near as poſſible in the form of a cone ſtanding on its baſe, the top as ſharp pointed as poſſible: when this is done, let the whole be covered thinly over with a coat of ſoil, to defend the heap from the weather: the circumjacent earth, provided it is not too light and crumbly, will always ſerve for this purpoſe.

When thus guarded, the heap may very ſafely be left till January or February, when it is in general the ſeaſon for ſpreading it: but, before it is uſed, it is always beſt to ſift the aſhes, that the cinders, ſtones, and half-burnt turf, may be ſeparated from them.

This may, perchance, by many be eſteemed an unneceſſary trouble; but experience, which is the beſt guide, has convinced me, that by this means I can better aſcertain the quantity that ought to be ſown on the ſeveral ſorts of land; for the ſmall powdered aſhes, being equal in quality, are of courſe equal in effect, whereas, when there has been any other mixture with them, the effect has often been greater or leſs than I could have wiſhed. Thus, when I mentioned the number of buſhels I ſtrew on an acre, it is always to be underſtood of ſifted aſhes: ſhould any farmer be inclined to try them rough as they are firſt produced after burning, the quantity to be allowed for an acre muſt be more in proportion to the mixture of other matter that is in them *.

Theſe

* The method of uſing them ſifted is certainly much to be preferred, as they muſt be more certain and equal in their operation.

If

Theſe peat-aſhes are almoſt, as I have already obſerved, a general manure ſuited to every ſoil. On cold clay they warm the too compact particles, diſpoſe it to ferment, crumble, and of courſe fertilize, and, in fine, not only aſſiſt it in diſcloſing and diſpenſing its great vegetative powers, but alſo bring to its aid a conſiderable proportion of ready-prepared aliment for plants.

On light lands theſe aſhes have a different effect: here the pores are too large to be affected, or farther ſeparated by the ſalts or ſulphur contained in them; but, being cloſely attached to the ſurfaces of the large particles, of which this earth is generally compoſed, this manure diſpoſes them, by means of its ſalts, to attract the moiſture contained in the air: by this operation, the plants which grow on theſe porous ſoils, are prevented from being ſcorched up and burnt; and if they want, which they generally do, more nouriſhment than the land is of itſelf capable of affording, this is readily and abundantly ſupplied by this uſeful manure.

In large farms it is very uſual to ſee all the home-fields rich and well mended by the yard-dung, *&c.* whereas the more diſtant lands are generally poor, impoveriſhed, and out of heart, for want of proper manure being applied in time.

Whilſt the farmers depend almoſt entirely on their yard-dung, this cannot fail being the caſe; for dung is of very heavy carriage: they are willing, therefore, to drop it as near home as poſſible, being in this way able to do a great deal more work in the ſame ſpace of time: but would they once try the virtue of peat-aſhes, all their lands might be alike improved, though at a very conſiderable diſtance from the home-ſtall; for ſo few of them are required, and they are ſo light of carriage, that a ſingle tumbril will hold as many as ought, in moſt caſes, to be laid on two acres of land; by which means, when theſe aſhes are uſed as a dreſſing for the diſtant fields, it coſts the farmer leſs in carriage than does that of the ſtable-dung for his home-fields.

You

If the farmer is inclined to uſe the coarſe parts that are ſeparated in the ſifting, let him lay them ſeparately on ſome of his ſtiff land that is in fallow, where they may be of ſome ſervice. N.

You may, perhaps, imagine I have ſaid too much in commendation of peat-aſhes as a manure; but be aſſured it is all warranted by experience *: if, however, you ſtill think it too much, aſcribe it to the prolixity of old age: I am ſure you will pardon me, when I inform you, that it is chiefly to the fertilizing quality of theſe aſhes I owe the eaſe I now enjoy. A journey to this metropolis gave me an opportunity of ſeeing your firſt publication, and of writing you this letter. I am,

GENTLEMEN,

London, Oct. 21, 1763. Your humble ſervant,

An Old WEST-COUNTRY FARMER.

NUMBER LII.

A Letter to the Editors, from a Member of the Society, relative to ſome Experiments made by Mr. Rocque, *in the Culture of the* Burnet *and* Timothy *Graſs, as artificial Paſtures, to ſerve as Winter-fodder for Cattle.*

GENTLEMEN,

I Own I think the world in general, as well as the ſociety in particular, is greatly obliged to Mr. Rocque of Walham-Green, for his long-continued attention to the improvement of agriculture in its ſeveral branches; and this obligation is of late greatly encreaſed, by the conſtant endeavours he has uſed, for ſome years paſt, to bring about a reformation in our meadow and paſture grounds.

The lands, dedicated to the purpoſe of providing our cattle with a ſtore of fodder, have been hitherto over-run with weeds, and uſeleſs, if not noxious, plants; for when a field is to be laid down in natural graſs, the uſual way is to leave it entirely to nature: the conſequence of this is, that it is generally ſeveral years before the land is completely coated

* We ſhould be glad to hear from this gentleman on ſome future occaſion. N. O.

coated with graſs, and when it is covered, perhaps half the number of the plants that grow on it had better be away *.

It is not to be doubted, but we have in England many ſorts of graſſes, which are well adapted to the climate, which are wholeſome food for cattle, and which, with the help of proper culture, would be a very advantageous crop for the farmer and grazier. England has many years been ſenſible of the great advantages that reſult from the culture of ſainfoin: in ſome ſoils lucern has been ſowed with conſiderable profit, and the Dutch trefoil is known to be excellent when properly managed. But theſe only ſerve as green fodder in ſummer: they may, it is true, be dried and made into hay, and in that form be reſerved for the cattle's food in winter; but this, independent of the inconvenience, trouble, and uncertainty, that attend the proceſs of making it and keeping it from damage, is not ſufficient; the farmer has alſo occaſion for green fodder in the winter, and early in the ſpring, and that on many accounts, particularly for feeding ſuch of his ewes as will yean early in the year, as well as for keeping them from pitching * after they have dropped their lambs.

It is neceſſary therefore to find ſome plant that will not only live through the winter, but that will alſo, if poſſible, vegetate in that ſeaſon. Both theſe properties have lately been found in the burnet; it not only preſerves its verdure during the hardeſt froſts of our winters, but alſo encreaſes in bulk, and grows, if the weather is at all open and mild.

This plant has hitherto been eſteemed a troubleſome weed in ſome places, but it is of late years only that it has been at all cultivated. If I am rightly informed, the late Mr. Wyche entertained the firſt idea of its being worthy of cultivation as a fodder for cattle, &c. Mr. Rocque has for two or three years paſt, at the recommendation of Mr. Wyche, ſown ſeveral

* It is very certain, that the methods of huſbandry, generally purſued with reſpect to our meadows, want great improvement: many meadows, that now let for ſeven or eight ſhillings an acre, might, with very little trouble or expence, be made worth at leaſt forty ſhillings. N.

* Loſing fleſh, a Weſt-country expreſſion.

ſeveral acres of it, and finds it may be mown three times in the ſummer ſeaſon. I ſaw a few days ago, in Mr. Rocque's ground, ſome burnet that had been cut the latter end of September: it looked very freſh and vigorous, and had acquired a conſiderable growth ſince that time.

I alſo ſaw in Mr. Rocque's barn ſome hay made of burnet: it was not bad, but would have been excellent had it not been left till the ſeed was perfected, and had it not been got up in a wet ſeaſon.

The beſt time to cut burnet to make it into hay, is juſt before it begins to flower, as it is then fulleſt of ſap, and tender, and nouriſhing: when the ſeeds are left to perfect, the ſtalks are apt to grow ſticky, the ſap being greatly exhauſted in the operation.

I am in great hopes we ſhall have plenty of burnet growing in a cultivated ſtate in England next year, as I heard Mr. Rocque ſay, he had ſold, if I miſtake not, above two hundred buſhels of the ſeed laſt autumn, for the purpoſe of ſowing for artificial paſtures.

Burnet is not only a wholeſome food for cattle, but it is alſo a food which, whether in a green or dry ſtate, moſt cattle are remarkably fond of: this, as well as its vegetating in the cold winter-months, ſhould induce our farmers to ſow it; they would certainly find their advantage in its culture, as there is no fear of its thriving in almoſt any ſoil; and it is beſides, as may be gathered from what is already ſaid on the ſubject, a quick grower.

The beſt time to ſow the ſeed of burnet* is in autumn, about the beginning of September; it will then have acquired ſtrength before the winter, and be in a flouriſhing ſtate in the ſpring of the year. It is a hardy plant, yet will it thrive in

* Mr. Miller, in his account of burnet, obſerves, that it is a very hardy perennial plant, and will thrive almoſt in any ſoil and ſituation. He adds, that they may be propagated either by ſeeds or parting the roots; if by ſeeds, that it muſt be ſown in autumn, the ſeed ſown in ſpring ſeldom growing the ſame year. If the roots are to be parted, he ſays it ſhould be done in autumn, that the ſeparated plants may get good root before the dry weather comes on in the ſpring.

in proportion to the goodneſs of the ſoil, and to the preparation the land has received: if the land is brought to a good tilth, it will come up freer, be quicker in its growth, and by being well rooted will better bear the ſeverity of the winter's froſt. The doctrine of cultivating plants, merely to ſerve as fodder for cattle, is, in ſome reſpects, novel; yet is it not on that account leſs conſiſtent with reaſon. Every other plant is improved by proper culture; why therefore ſhould not our graſſes be as capable of this improvement?

Mr. Rocque has alſo ſown a ſpot of land with a kind of graſs called *Timothy graſs* *: this delights in a wet or moiſt ſoil, and has a running root like couch graſs: the roots of it are very apt to mat together to a conſiderable thickneſs, ſo as to form a coat or ſkin, that will bear cattle on boggy ground. This then is a great improvement for ſuch kinds of ſoil, as it will thrive and flouriſh on them, when perhaps there is ſcarcely any other ſort of graſs that can with advantage be ſown there. As to the natural graſs that grows on bogs, it is in general ſo coarſe and rank, that cattle muſt be, in a manner, pinched with hunger, before they will meddle with it.

The Timothy graſs is not perhaps the ſweeteſt, or the beſt, that can be cultivated; but it is nevertheleſs undoubtedly beſt calculated for lands of the above nature: was it only for its forming with its roots a coat that will bear the weight of heavy cattle, this is an advantage, which it poſſeſſes, in the before-mentioned caſe, above any other graſs.

When the Timothy graſs is ſown on bogs, or ſoft poachy marſhes, this matting of the roots is, doubtleſs, as I have obſerved, a great advantage; but this, as well as its ſhooting freely from every joint of the root, is a very good reaſon

* It would oblige us much, if any gentleman would take the trouble of giving us a more particular account of the nature and culture of the Timothy graſs. A ſhort piece on the ſubject, from Mr. Rocque, would be conferring on the public, as well as us, a laſting obligation. E.

why it ſhould be ſecluded entirely from our upland paſtures, which are ſometimes broke up and brought into tillage; for it is as difficult to clear land of the roots of this graſs, as it is of thoſe of the couch graſs, which are known by every farmer to be extremely difficult to get rid of. But it is not for theſe upland paſtures that the Timothy graſs is recommended: let it be confined to wet, ſwampy lands, that are not in their nature too poor, and every reaſonable advantage will be found to reſult from the ſowing it.

It was in September laſt, if I am rightly informed, that Mr. Rocque ſowed his Timothy graſs-ſeed, and when I ſaw it a few days ago, it was in a thriving flouriſhing condition. The land on which it grows is ſwampy, ſoft, ſpungy, and black, and ſeems to be tolerably rich.

This ſame Mr. Rocque has ſeveral other ſorts of graſs-ſeeds, on which he is making experiments; but, as I am not properly informed of their nature and qualities, I ſhall not enlarge on the ſubject, leſt I ſhould miſlead, inſtead of informing the judgment.

Before I conclude, I muſt ſay a word or two on the excellent method in which Mr. Rocque manages his little vineyard: his vine-props coſt him but little, and his pruning chiefly conſiſts in keeping them near the ground, as by that means the fruit ripens the better: he is indeed no friend to the pruning-knife, many fine bearing trees having been, he ſays, entirely ruined by too much cutting.

Adieu, Gentlemen, and believe me a well-wiſher to your work.

A MEMBER of the SOCIETY.

Fulham, Nov. 15, 1763.

NUMBER LIII.

A Letter to the Editors, recommending Monſ. de L'Iſle's *Scythe for mowing Wheat, with the Reaſons why the* Hainault *Scythe only ſucceeded in the Trials that were made laſt Harveſt in* Northamptonſhire.

GENTLEMEN,

IN the late trials made of ſome ſcythes, for mowing wheat, in this county, only that from Hainault ſucceeded; and this, indeed, on reflection, is not much to be wondered.

The perſon to whom the trying theſe experiments was entruſted by the ſociety of arts, was one Monſ. Roland Charles de Breux: he is intelligent and communicative, but knew how to make uſe of the Hainault ſcythe only: as to the other two, which were ſent down by the ſociety, he did not pretend to know any thing about them.

In a piece (marked N°. IV.) in your collection, I find deſcribed the manner of mowing wheat with a ſcythe, invented by Monſ. de L'Iſle, and recommended by Monſ. du Hamel in his Elements of Agriculture lately publiſhed in France. Had our Northamptonſhire mowers known how to uſe this ſcythe, they would probably have found it anſwer better than that ſo ſtrongly recommended by Monſ. Roland.

We have, in England, mowers who are very capable of uſing this inſtrument of huſbandry in a proper manner; that is, of mowing the wheat towards the wheat*; and we need ſend no farther than the vale of Ayleſbury to procure them.

In the ſtiff ſtrong ſoil of this vale they annually ſow a great many acres in horſe-beans, all which they uſually mow with a bare ſcythe, *in ſwarth*, as they term it; that

* See page 20, of our collection.

is, they mow the beans towards the beans; and each mower has a boy * to follow him with a fork to lay them in wads: their reaſon for mowing them *in ſwarth* is on account of the largeneſs of their crops, and the beans leaning inwards: it is only when they chance to have a thin crop, that they venture to mow them againſt their bending; (this they call *throating*) for ſhould they do it in common, it would break the hearts of their mowers, being as hard work again as the other.

When they mow in ſwarth, the workmen always keep the points of their ſcythes downwards, or they would ſtrip off great quantities of the beans.

In Hertfordſhire alſo, ſome farmers mow their beans with the ſcythe, and a three-ribbed ſtrong cradle: this cuts a great deal in a day, lays the beans in regular rows, and ſaves the expence of a wadder; but in Buckinghamſhire they cannot uſe a cradle, their crops being in general ſo heavy, that the workmen could not carry over the ſwarth.

You muſt perceive that there is a great analogy † betwixt the Ayleſbury way of mowing beans, and Monſ. de L'Iſle's method of mowing wheat: both workmen mow inwards towards the ſtanding corn; both of them have gatherers to collect the corn, and lay it in wads or gavels, and both work where there is a heavy crop: but Monſ. de L'Iſle's workman cuts the wheat againſt the bending, or, as an Ayleſbury vale-man would ſay, *throats* it; whereas the beans are cut with the bending. The reaſon of this difference ſeems plain: the beans are cut with the bending, becauſe the ſwarth is heavy, and the ſtalks are generally tender and green enough to yield eaſily to the edge of the ſcythe; whereas the wheat is not ſo heavy, but it is eaſily carried over by the ſcythe, and the ſtraw of it is ſo dry, hard, and glaſſy, that if it was not mowed againſt the bending, the edge of the ſcythe would be apt to ſlip up, the

* A gatherer follows each mower in Monſ. de L'Iſle's method of mowing wheat. See page 20, of this work.

† See the piece before referred to, *paſſim*.

the ſtubble would be left long, and many of the ears be left entirely uncut. This will eaſily be comprehended, if your readers will take the trouble of turning to No. IV. of your collection, where, as I have already obſerved, Monſ. de L'Iſle's method of mowing is deſcribed.

In the plate, which you gave of the ſcythes, fig. 1. is the handle, or mounting of Monſ. de L'Iſle's ſcythe, where at the letter d, may be ſeen the two oſier twigs, that are ſubſtituted in the ſtead of a cradle: figure 2. is the blade to it, being ſix inches ſhorter than the blade of the common ſcythe, or thereabout. This I mention for the ſatisfaction of ſuch as are curious in matters that relate to agriculture.

In the trials that are to be made next year, I would therefore, by all means, adviſe the ſociety to let Monſ. de L'Iſle's ſcythe be uſed in mowing wheat, by ſome of the Ayleſbury workmen, when there will be no doubt of its anſwering every thing that has been ſaid of it, and it would ſooner come into uſe than the Hainault ſcythe, as differing leſs from that commonly made uſe of; beſides, there is no doubt but that in the hands of Engliſh workmen it would ſoon be greatly improved.

Northampton, Your very humble ſervant,
Nov. 24, 1763. A. B.

NUMBER LIV.

A Letter to the Editors, on the Culture of Cole-Seed.

GENTLEMEN,

THE county I live in making many woollen goods, a great quantity of rape-oil is annually expended in that manufactory. This, together with the natural richneſs of our land, prompts us often to ſow the cole-ſeed, or rape-ſeed, which thrives extremely well with us.

In moiſt ſoils, we ſow it on four-bout lands, the large furrows betwixt the ridges ſerving to drain off the water.

We do not truſt to the richneſs of our land alone, for we almoſt always lay on a conſiderable quantity of manure; being of opinion, that land cannot be in too good heart for this plant, which requires a great deal of nouriſhment, having a very luxuriant growth, and draining the land much: for this reaſon it is in vain to attempt ſowing it on poor, hungry, dry ſoils, on which it will never thrive, nor turn to profit.

Land cannot be too mellow, nor too much pulveriſed, for the cole-wort, for it not only requires a rich ſoil, but alſo the land it muſt be in excellent tilth: we allow land on which it is to be ſown, ſometimes three or four plowings, according to the nature of the ſoil; if ſtiff, it requires the more tillage; if a looſe, rich, crumbling loam, leſs plowing will do.

In July we harrow the field over, and afterwards ſow on it half a peck of ſeed broad-caſt out of hand. As ſoon as the plant gets out of its ſeed-leaf, I hoe it as I do my turneps, thinking this a better way than to let it grow rambling without after culture, as ſome of my neighbours do.

This crop is, without care, very apt to be deſtroyed by ſlugs, whilſt the leaf is young and tender; but to prevent this, I always ſow over the young plants a mixture of ſlaked lime and wood-aſhes: about ten buſhels of ſlaked lime, and fifteen of the aſhes, will be quite ſufficient for an acre: this is the quantity I uſe.

I find great benefit from this practice, as it not only burns up the ſlug, and deſtroys many pernicious inſects, but alſo greatly helps forward the crop, inſomuch that it gets to a ſtrong head before winter, and yields me plenty of fodder for my cows, ſheep, *&c.*

A part of my ground will ſometimes unaccountably fail; that is, the ſeeds will not come up; but as the cole-wort bears tranſplanting extremely well, I make my men remove

ſome

ſome of the plants, where they ſtand too thick, to ſupply the deficiencies: theſe are ſure to take, eſpecially if rain enſues; if it does not, I cauſe them to be watered, which is ſoon done, as they ſeldom fail in great quantities.

The cole-wort is ſo hardy a plant, that it bears, without injury, the froſts of our ſevereſt winters; but the north-eaſterly winds, if very cold and piercing, will ſometimes greatly injure a crop, and there is no guarding againſt theſe.

We ſometimes in this county ſow cole-ſeed merely for the ſake of the winter-feed it affords for our cattle, in which caſe we plow it up early in the ſpring, and are almoſt ſure of a good crop of ſound barley. This is not generally practiſed, becauſe it requires great care to clear the land of the cole-wort plant, which would otherwiſe grow up with the barley, and injure it: I, however, and ſome others, have often practiſed it to advantage.

One thing I muſt obſerve before I conclude, which is, that cattle muſt be fed with this plant with great care, or it will have fatal effect: it is beſt to give them with it, at times, ſweet dry hay: this corrects the ſuperabundant moiſture of the plants, and ſerves to dry up the uncorrected and raw juices that would otherwiſe mix with the maſs of blood in the cattle: ſuckling ewes may feed on it heartily however with very little danger; and, in fact, experience will ſoon direct the young farmer in the management of his cattle in this reſpect.

We reap, for the moſt part, our crops of cole-ſeed; and as it is very apt to ſhed, we prepare frames lined with threſhing-cloths, each drawn by one horſe, to receive the heads of the plants as faſt as they are cut off.

When this crop is properly managed, nothing pays better.

I am, GENTLEMEN,

Your very humble ſervant,

Witham, Eſſex, Nov. 3, 1763. S. T.

To the care of Mr. Newbery, London.

NUMBER LV.

A Letter to the Editors, on the Uſe of Horn-Shavings as a Manure for Chalky Land.

GENTLEMEN,

A Part of the farm I occupy, is a chalky, brittle, crumbly ſoil: this I was for ſome years at a great expence to mend properly, ſo as to bear me a tolerable crop of wheat; but recollecting, that I could, in my neighbourhood, at no great expence, get plenty of horn-ſhavings, I reſolved to try them; and, indeed, they anſwered beyond expectation.

After I have brought my land into proper tilth, I ſow on each acre about fourteen buſhels: on theſe I ſow my wheat, being firſt ſteeped and limed, and immediately plow it in.

The virtue of this manure is not ſpeedily exhauſted; all the ſucceeding crops, for four years, are the better for it, and it particularly agrees with light lands.

I have uſed it to advantage on ſome light gravels on my farm, which, with hotter manures, are often apt to burn the crops, eſpecially in dry weather: but theſe ſhavings, being of a ſpongy nature, retain the wet, attract the dews, and are, by that means, of infinite ſervice. This is all I have at preſent leiſure to ſay.

I am, GENTLEMEN,

Your very humble ſervant,

Kent, Nov. 16, 1763. R. S.

Muſeum Ruſticum, &c.

For DECEMBER, 1763.

NUMBER LVI.

A Letter to the Editors, on the Methods of mowing Wheat with the Hainault, *and other Scythes.*

GENTLEMEN,

A Correſpondent of your work, in a piece marked Number XXXII. and ſigned *W. H. Farmer*, has obliged the public with an account of ſome experiments that were made in Northamptonſhire the laſt harveſt, in the affair of mowing wheat; to which you have annexed a plate of the parts of the ſeveral ſcythes that were ſent down, in order to make theſe experiments. But after all, I find not, either in your correſpondent's letter, or your note, any indication by which the public might be informed which was the Hainault ſcythe.

You, who are well verſed in theſe matters, might, perhaps, imagine there was no neceſſity to be ſo particular in a thing which moſt people know; but this, in fact, is not the caſe; for I have, myſelf, by numbers of people been aſked which was the Hainault ſcythe in your plate, as it was pretty well known I could reſolve this doubt, having been

in Northamptonſhire, at the time the experiments were made.

This, Gentlemen, has induced me to dedicate a vacant hour towards the farther explanation of this affair; and I ſhall begin by obſerving, for the benefit of your readers, that fig. 5. (in your plate of the ſcythes, page 160,) is the blade of the Hainault ſcythe, and fig. 6. is the handle of it.

The blade of this ſcythe is about half the length of thoſe uſed in England; nor, indeed, could it well be longer, as it would be then too heavy to uſe with one hand, which is the method of working with this ſcythe.

Was the handle of the ſcythe quite ſtraight, the labour of the wriſt would be too great for any workman to endure for any length of time: this then is the occaſion of the angle, which begins at b, and ends at c, and thereby forms the gripe, being the part by which the workman holds the ſcythe; and there is a leather loop, and ſometimes two, to put his finger in, to give him the greater purchaſe.

The broad part, c d e, is a reſt for the arm, being hollowed on one ſide for that purpoſe; and this reſt greatly encreaſes the power of the workman in mowing, and contributes much to alleviating the fatigue of the operation, which would not otherwiſe be bearable*.

The hook which the mower carries in his left hand is to be ſeen in your plate, marked fig. 7. There is nothing particular in this: it ſerves to give the corn a proper bend for the ſcythe, and gather it afterwards into a gavel, before the mower takes another ſtroke: the mortiſe at the end is of no other uſe but to help to carry the ſcythe on the workman's ſhoulder, at which times it receives the blade.

The great difference betwixt this ſcythe and that commonly uſed, conſiſts not only in its form, but in its being uſed with one hand only; whereas all other ſcythes require both the workman's hands to put them in action: whether this

* This ſcythe ſeems, indeed, very well calculated for the workman's uſing it with one hand; but we fear it will be a conſiderable time before our labourers will be perſuaded to attempt uſing it in common. N.

this is an advantage is difficult to determine; but that it will be a great obſtacle to its being brought into uſe is certain.

It is well known that farmers and their men hate innovations of all ſorts, eſpecially when they are ſo very different from the methods in uſe. This will induce them to reject the Hainault ſcythe; *for who*, ſay they, *ever heard of a man mowing with one hand, who has the uſe of both?*

Under theſe circumſtances, I ſhould imagine, it would be moſt prudent to bring into uſe ſome other ſcythe, for this purpoſe of mowing wheat, not ſo different in form from that uſed in mowing our barleys; and if I miſtake not, one to be found in your plate would do extremely well, as it ſeems to have all the requiſites.

The blade of this ſcythe, marked fig. 3. is within ſix inches as long as our common blades, and not unlike them in form. The handle, fig. 4. is a curious invention. At a the blade is fixed, at b is the ſhort handle for the right-hand, and the crook at the end is to be held in the left-hand.

The advantages of this form cannot but be evident, as by only ſhifting the left-hand from one part of the crook to the other, the mechaniſm of the operation is altered, and the edge of the blade is raiſed or lowered at the mower's pleaſure; it is beſides, by this convenience, accommodated to be uſed by workmen of different heights, though mounted in the ſame manner for both, which is a thing no other ſcythe can boaſt.

Notwithſtanding all the advantages poſſeſſed by this ſcythe, it did not meet with ſucceſs in the trials that were made in Northamptonſhire; but this, indeed, is to be aſcribed to the perſon's not knowing how to uſe them, who was ſent down thither by the ſociety; and if he knew not their uſe himſelf, he certainly could not inſtruct others*.

* Monſ. Roland Charles de Breux, the perſon employed by the ſociety in theſe experiments, did not undertake to inſtruct the workmen to uſe any ſcythe but that from Hainault: if the others, therefore, did not ſucceed, it was not his fault; they may, perhaps, have greater ſucceſs next harveſt, when they will again be tried with all the neceſſary precautions. E.

The ſcythe I am treating of was, if I am not greatly miſinformed, invented and firſt uſed in Brabant; it anſwered the expectations that were formed of it, and is, on that account, fit to be adopted in England.

The other ſcythe delineated on your plate, that is, Monſ. de L'Iſle's, which ſtands recommended by Monſ. du Hamel, in his Elements of Agriculture, is not, I think, ſo proper for mowing wheat as the Brabant ſcythe: the ſtraightneſs of the handle muſt be an impediment in the working; and it is, beſides, unconſcionably long.

I would recommend that, at a proper opportunity, the Brabant ſcythe have a fair trial, and if it was to be worked in the manner recommended by Monſ. de L'Iſle for his ſcythe, I ſhould imagine it could not fail ſucceeding.

To compaſs a proper method of mowing wheat, to be brought into general practice, would be a great acquiſition in huſbandry, on many accounts, particularly, as our harveſts would by that means be cut and houſed in much leſs time, and of courſe leſs of our corn would every year be damaged by the weather, which is ſometimes, at the latter end of the ſummer, and the beginning of autumn, very wet.

Every method by which the trouble or expence of the works of huſbandry can be leſſened, muſt, of courſe, greatly promote the progreſs of agriculture: it is the dearneſs of labour that makes corn dear; and it muſt of courſe be cheap, if the farmer can, for half the money he now does, plow, harrow, ſow, reap, and mow his crop.

I know it will be urged, that the poor would then want employ, as the farmer would have occaſion for fewer hands to do his work; but this is an idle objection, as it is well known, that in our woollen manufactories, in particular, many more hands might be employed, than now apply for work; and if by the encreaſe of hands the wages were leſſened, it would be of benefit to the kingdom, without hurting the poor; for as corn would be much cheaper, they could live better on their leſſened wages, than they now can on thoſe that are given. And, moreover, if the

wages

wages were leſſened, the conſumption and demand would greatly encreaſe, as the manufacturers could afford to ſupply the merchants at ſo cheap a rate, that they would under-ſell our neighbours the French at the foreign markets; which is not the caſe at preſent, owing to the dearneſs of proviſions and labour.

I hope you will take this letter as it is meant, and if you think it has merit ſufficient, give it a place in your collection.

I ſhall perhaps, in future, communicate to you ſome obſervations which may not be deemed incurious by your readers. Agriculture has long engaged my attention, and I have from time to time endeavoured to gain every information I could on the ſubject.

If we would find true happineſs, or content, which is much the ſame thing, we ought probably to ſearch for it among ſuch as paſs their lives in rural employments: by theſe the moſt active mind is fully occupied, no room being left for tyrant paſſions, which are, in fact, almoſt the ſole ſource of our varied misfortunes.

But I forget, that in ſuch a collection I muſt not run too much into a ſtrain of morality. Pardon me for my little digreſſion, and believe me very much,

GENTLEMEN,

Your humble ſervant,

London, Nov. 25, 1763. CLERICUS.

NUMBER LVII.

A Letter to the Editors, on the Benefit of watering Land in dry Summers.

GENTLEMEN,

IF you think the following method of agriculture deſerves your notice in the *Muſeum Ruſticum*, a work ſo well calculated for the improvement of farmers in general; I ſhall relate the management of a field of five acres, which

which I laid down in graſs in the year 1762, which proved a remarkable dry one; many crops of new-ſown graſs failing through the exceſſive drought of the ſeaſon.

It had a ſummer's tilth the preceding year, to deſtroy all weeds that might be produced in the former crop, which was wheat*: during the winter it was again plowed, and twice more in the ſpring: it was intended to have given it another plowing † before it was ſowed, to reduce it to a very fine mould, which is always reckoned beſt for graſs; but the rainy weather at that time prevented it, the ſoil being a ſtrong clay, very retentive of wet for ſome time.

The land was made as level as poſſible, and then ſowed with white oats, only three buſhels ‡ on an acre, contrary to the maxim of this county, where our farmers never ſow leſs than four; this was deſigned with a view of preſerving the graſs ſeeds, conſiſting of *rye-graſs*, *trefoil*, *white Dutch-clover*,

* Our correſpondent's plowing this field the preceding ſummer, to deſtroy the weeds that might have riſen in the wheat-ſtubble, was certainly very good huſbandry, and could not fail anſwering his expectations: this plowing was, beſides, of great ſervice towards reducing the land into a fine tilth. O.

† This gentleman, with great judgement, allowed his field four plowings, and would have given it a fifth before ſowing, had not the weather been wet. A little reflection will almoſt always make the affairs of a farm go well. It ſhould be conſidered that a ſtrong ſoil requires, at leaſt, double the plowing that a light ſandy one does; yet have we often known ſlovenly farmers lay down a ſtiff ſoil in oats and graſs ſeeds, with only two ſlight plowings: the conſequence has generally been a failure of one or the other, if not both of their crops. To ſuch farmers we recommend our correſpondent's practice. O.

‡ Great advantages muſt, of courſe, reſult from ſowing but a few oats for ſeed. Had it been ſown thick, the crop of graſs would have been either choked or ſtarved; but by this thin ſowing, it received, during the ſpring-months, in its infant growth, all poſſible benefit from the dews, air, and ſun; and afterwards, when the ſun's influence grew too powerful, and would have ſcorched it up, the oats branched and run to head, and, by ſhading the graſs, protected it in its autumnal growth. R.

clover, rib, or plantane-graſs, and *hay-ſeeds* *, from being choked up by too great a crop of corn, which is often the caſe in wet ſeaſons: the corn, growing rank, is ſoon laid by the violence of the wind and rain, to the total deſtruction of the graſs, none being obſerved to grow where the corn is laid.

The ſeaſon proving remarkably dry, I took a very particular, and almoſt, I may ſay, ſingular method of helping my crop to riſe in ſpite of the dry weather, ſo prejudicial to the graſs.

At all events I fitted a trough pierced with holes to a water-cart, that contained ſixty gallons, in the ſame manner as the ſtreets in London are watered in the ſummer-time; and a pond being contiguous to the field, my ſervant, with only one horſe, watered the ground in five days time, and that only once over, which anſwered beyond expectation, giving convincing proofs of the utility of the ſcheme.

In about a fortnight's time, the grain aroſe to a conſiderable height, ſhading and keeping cool the graſs underneath: by harveſt-time ſeveral of the oat-ſtraws meaſured from four to five feet in height; and the very next field, ſowed with oats and graſs, failed conſiderably, none of the oats meaſuring more than two feet, and many under: the crop of graſs was entirely loſt, and obliged to be plowed up again in the following winter.

The produce of my field, ſo managed, was thirty-two quarters † and two buſhels of good oats, and would have yielded more, but I was obliged to make the ſtack in the field,

* Were we to find any fault with this gentleman's proceeding, it would be for ſowing in the ſame field confuſedly ſo many kinds of graſs-ſeeds. We cannot enough recommend the ſowing the beſt kinds diſtinctly and ſeparately, cultivating them regularly, as we do our crops of corn. N.

† This was indeed a very good crop, and we join with our correſpondent in admitting a great efficacy in his watering. We ſhould, however, have been glad if he had informed us, at what time of the year he watered his field; how many turns of his cart it took to an acre, or, in other words, how many turns his man went in a day; in what manner the field was manured

field, not having barn-room at that time; and the double carriage afterwards to be thraſhed (the wind having blown down the ſtack) contributed greatly to diminiſh the produce, or it had been larger.

The graſs proved very good, and a full crop: almoſt every other farmer loſt their crops of graſs that ſeaſon. I am convinced that watering the ground, which was done in July, the grain being ſowed the April before, was the principal cauſe of ſo large a produce.

I am, GENTLEMEN,

Nov. 23, 1763. Your moſt humble ſervant,

To Mr. Newbery, *Bookſeller*, R. H——E,

in St. Paul's *Church-yard.* In the North of Hertfordſhire.

NUMBER LVIII.

A Letter to the Editors, hinting a Method of preſerving the Madder-Root for Sale, without drying.

GENTLEMEN,

THE hint thrown out in your *Muſeum*, (N°. XXIX. page 147.) in regard to the making an extract of the madder-root, which might ſerve the purpoſes of dying, I am apt to think, will be of very little uſe, upon account of the large quantity of water which muſt neceſſarily be uſed to make, in the firſt place, a proper decoction of the ſaid root, green, or dry, in order to draw the whole colour from it; which decoction muſt afterwards be boiled away to the conſiſtence of an extract; and the expence hereof, beſides the nicety which is requiſite in every operation

manured for the preceding crop of wheat; and whether that grain was ſowed on a fallow, or after beans, peas, or any other crop. We ſhould be glad of another letter from this gentleman, explaining theſe particulars; and his future favours, on any other occaſion, will greatly oblige us. N.

ration of this kind, I apprehend, will be too heavy a charge upon the commodity *.

I am much better pleaſed with what your ingenious correſpondent has obſerved of the uſe of this root in its green eſtate. *Some ingenious men in France*, he ſays, *have tryed how it would anſwer to uſe the madder-root green, for dying. It did very well.* And I know of no objections that can be made againſt the uſe of it this way, if our dyers could poſſibly receive it from the hands of the planters in this condition, without any danger of its fermenting and putrefying before it could reach them.

To prevent this, I propoſe, that the roots, as ſoon as they are taken out of the ground, ſhould be well waſhed, and immediately thrown under a mill, the conſtruction of which may be eaſily deviſed, there to be ground, with what water may be requiſite, into a fine pulp; and this pulp afterwards to be put up into tight caſks, with a proper quantity † of bay-ſalt and alum, in equal proportions. Theſe ſalts, I apprehend, will prevent any fermentation, and conſequently any corruption of the materials, without the leaſt injury to their colour: the latter, I have reaſon to think, will rather improve it.

To try this experiment, a planter has nothing to do but to pound a few green roots very minutely in a marble mortar, with a given quantity of theſe ſalts, and afterwards to cover them up cloſe in a ſtone jar, obſerving, from time to time, what alteration follows in their colour, and whether any fermentation enſues.

* As in ſome counties a great deal of coke, or coal-cinders, are conſumed, for drying malt; perhaps this extract might be made and evaporated with very little expence, if the furnaces of the coppers were ſo contrived, as to burn the coal that was uſed, to a coke or cinder, at the ſame time that it heated the water, or extract of the root. This is far from being impoſſible; and, once compaſſed, as the coke would ſell for, at leaſt, as much as the coals coſt, there could nothing be charged to the account of the madder, but the labour of the men, and the carriage of the coals to and from the laboratory. N.

† Our correſpondent apprehends, about an ounce of each to a pound would be ſufficient.

If no fermentation follows, he may be aſſured the root, in this condition, may be ſent to any part of the kingdom, and will ſerve all the purpoſes of dying, equally with the dried root *; and though the bulk will be conſiderably encreaſed, and the carriage conſequently enhanced, yet, I apprehend, the planter will be enabled to afford it upon terms ſo much cheaper, that the conſumer, in the whole, will be much better ſerved.

If I could have had any opportunity, myſelf, of trying this experiment, I ſhould not have reſted ſatisfied with barely ſending you my ſpeculative opinion upon the matter †: thoſe that have ſuch opportunities, and will ſend you the reſult of any trials of this kind, may be of ſignal ſervice to their country, and among the reſt will particularly oblige, GENTLEMEN,

Mancheſter, Nov. 24, 1763. Your humble ſervant,

To the Care of Mr. Newbery, J. M.

in St. Paul's Church-Yard.

* Could the ſalt, which was uſed to preſerve the madder in the barrels, be afterwards recovered from the dyer's baths, which one would imagine was not impracticable, it would greatly leſſen the price of the root to the conſumer, as the ſame ſalt, with a little addition in quantity, might be uſed again for the ſame purpoſe; by which means the duty, which is very heavy on ſalt, might be ſaved. This may, perhaps, be thought a ſaving not worth attending to, being only in the proportion of an ounce to a pound; but if it is conſidered, that of this ſalted pulp of the root, eight, if not ten pounds muſt be uſed by the dyer, where one of the dried root would be ſufficient, it alters the caſe. N.

† If this gentleman would continue his favours, it would oblige us much.

NUMBER LIX.

A Letter to the Editors, relative to Monſ. de L'Iſle's *Method of mowing Wheat.*

GENTLEMEN,

HAVING ſeen your *Muſeum Ruſticum*, of which I intend to be a conſtant reader, on account of the many uſeful obſervations already contained in it, I could not help taking notice of a piece marked No. IV. and entitled *A Letter, containing Obſervations on the new Method of mowing Corn, invented by Monſ.* de L'Iſle.

I am a great lover of agriculture, not leſs for the pleaſure it gives me, than for the profit that naturally reſults from a proper practice of it.

I ſhould be glad to introduce this method of mowing wheat into my native country *; (you muſt by this time know I am a foreigner) but I do not find, in the piece above mentioned, any perfect deſcription of the dimenſions and proportions of the ſcythe †, ſo as to enable me to form a proper idea of it, and put me in a capacity of directing workmen how to make one.

I ſhould be glad to be informed where I can find a perfect deſcription of this ſcythe, together with ample inſtructions how to uſe it ‡. If it ſhould ſucceed in the trials, I

* We have taken the liberty of altering, in ſome reſpects, the form of this letter, but our correſpondent's thoughts are all preſerved. N.

† Figures 1 and 2. in our plate, page 160, are the handle and blade of Monſ. de L'Iſle's ſcythe; the dimenſions and proportions of it are contained in the note under page 160: we refer our correſpondent alſo to Number LIII. page 235, of our collection, and to Number LVI. page 241: theſe pieces he will not, probably, be diſpleaſed with reading, if he has not already ſeen ſome of them. N.

‡ Monſ. de L'Iſle's ſcythe is greatly recommended by Monſ. du Hamel, in his *Elemens d'Agriculture*, lately publiſhed in France:

purpoſe making with it in my country, I will certainly communicate it to you, as well as any other obſervations in huſbandry, which I may think worthy of appearing in your collection.

I ſhould alſo be glad to be informed, whether the inventor of this ſcythe was Edward Liſle, Eſq; * who wrote the Obſervations in Huſbandry, being led to this imagination by the affinity, if not the identity, of the names. Your giving me the information above required, will very much oblige, GENTLEMEN,

London, Nov. 4, 1763. Your very humble ſervant,

To be left at Mr. Newbery's, *Bookſeller, in* St. Paul's Church-Yard. A FOREIGN FARMER.

NUMBER LX.

A Letter to the Editors, on the Culture of the Liquorice Plant.

GENTLEMEN,

THE ſubject of this letter being apparently uſeful, I hope you will give it a place in your work.

I have, in my time, raiſed a good deal of liquorice: it may therefore be preſumed, I know ſomething of its culture. This knowledge, acquired by long experience, I am willing to communicate, at leaſt in part, for the benefit of others, being ſenſible there is a ſale for much larger quantities of this root, than are annually raiſed in this kingdom.

The

France: it was tried there, long before it was even heard of in England. Monſ. du Hamel's account, though not quite ſatisfactory, will ſtill be proper for our correſpondent to read. R.

* After what has been ſaid in the preceding notes, it is ſcarcely neceſſary to obſerve, that the Edward Liſle, Eſq; mentioned by our correſpondent, is not the inventor of the ſcythe in queſtion. This gentleman's future favours will be very acceptable. N.

The common culture of it is not difficult to be learned; and this, with an attention to ſome of the obſervations I ſhall hereafter make, will enable any thinking farmer, that knows his buſineſs, to cultivate it to advantage.

This plant thrives beſt on a deep, looſe, rich mould *; and if it is freſh land, that has not for many years borne corn, the profit will be the greater, as the crop will be larger, and the roots of a finer quality.

A rich ſandy ſoil, provided it is deep, will do well for this plant; and it muſt always be remembered, that too much moiſture is its greateſt enemy: let no one therefore attempt to plant it on a damp clay, leſt the whole crop be cankered.

Land cannot be made too fine, nor dug too deep, for liquorice: it ſhould be, at leaſt, moved with the ſpade to the depth of two feet and a half, and if a little deeper, ſo much the better.

If the land, on which the liquorice-ſets are to be planted, is freſh, rich, and in good heart, it needs no manure for the firſt crop; but if it has been for ſome years in tillage, the planter will do well to give it, in the ſummer time, a good dreſſing of very rotten dung, lime, and coal-aſhes or ſoot, mixed together, ſome months before, in a compoſt: the quantity muſt be regulated by the ſtate of the land, always remembering that this plant requires a great deal of nouriſhment, and is a great impoveriſher of land, though it extracts much of its nouriſhment, or food, from a conſiderable depth, at a diſtance from the ſurface; ſome of the roots running five or ſix feet, at leaſt, into the ground.

When the ground is properly prepared, reduced to a very fine tilth, and laid level, ſome liquorice runners, or ſets, are to be procured. Theſe muſt be cut into pieces, about eight or nine inches long each †, and planted in rows, with dib-

* Mr. Miller ſays, it delights in a rich, light, ſandy ſoil, which ſhould be three feet deep at leaſt.

† Ten inches long each, Miller ſays, with each a good bud, or eye, or they are apt to miſcarry.

dibbers armed with iron points. I make my rows two feet aſunder, put my ſets fifteen inches from each other *, and when three rows are planted on a ſix-feet bed, I allow two feet more of interval betwixt bed and bed.

When I put in my ſets with the dibber, I leave the upper end of each ſet juſt level with the ſurface of the ground: I ſhould have obſerved, that I have all my ſets carefully inſpected before they are carried into the field, to ſee that each of them has one, if not two eyes, or buds, without which they would make no ſhoots.

When the whole ſpot of ground is planted, I make my labourers dig up the intervals one ſpit deep, and ſpread the earth on the beds: this raiſes them about two inches above the head of the ſets, and by lowering the intervals, ſerves in wet ſeaſons to drain the beds. I generally contrive to get this work done by the laſt week in September †; but in favourable years, the middle of October is not too late.

If the weather proves mild, I have no farther trouble with them during the winter; but if it is likely to freeze hard, I cover the beds with peas haulm, or long dung, or ſome ſuch matter, to forward the growth of the roots in the ſpring, and protect them, during the winter, from the froſts.

Early in the ſpring, on the firſt appearance of the weeds, I allow my liquorice a thorough hoeing; and this is ſeveral times repeated in the dry weather of the ſummer.

The winter following, I again cover them with long dung, and in the ſpring, before the roots begin to ſhoot, I have the ſpaces betwixt the rows on the beds looſened with a ſpade, and the intervals are well dug; immediately after

* Our correſpondent agrees pretty well with Mr. Miller, as to the diſtance at which the ſets are to be planted, both in the rows, and one row from the other.

† Miller ſays that the beſt ſeaſon for planting theſe ſets is, towards the end of February, or the beginning of March; but we are rather inclined to join in opinion with our correſpondent, and prefer the autumn for this work, particularly if the ſets are, during the winter, guarded by ſome long dung from the hard froſts. N.

after which, I give the land a ſlight dreſſing of coal-ſoot, ſown by hand: it ſhould be thick enough to make the land look black: this the firſt rains waſh in, and it greatly warms and invigorates the plants.

The ſecond and third ſummers, all I have to do, is to keep my crop clear of weeds: this, indeed, is very neceſſary, and the hoeings for this purpoſe muſt be more or leſs frequent, according to the ſeaſon; generally, three times in the ſummer are quite ſufficient, eſpecially if the land was well prepared before the ſets were planted.

Many good ſenſible farmers, whom I have known to cultivate this plant, in autumn have a practice of cutting down the ſtalks, whilſt they are in full ſap, thinking thereby to ſtrengthen the roots. I differ from them, however, in opinion, and am rather apt to imagine, that this cutting of the ſtalks, whilſt the ſap is in motion, muſt be prejudicial to the roots. It is, therefore, my cuſtom, always to defer cutting off the ſtalks, till they are withered, and begin to decay; nature then indicating, that an abſtraction will be of ſervice.

Theſe roots ſhould have three ſummers growth* before they are fit to take up: it is very ſeldom that they have attained a proper ſize at two years end; and if you leave them longer than three years in the ground, the roots are apt to grow ſticky, and loſe a part of their ſaccharine quality.

I never take them up till the ſap is entirely at reſt, and the leaves and ſtalks are withered: they are then in prime order, and fitteſt for ſale.

If

* Mr. Miller ſays, theſe plants ſhould remain three years from the time of planting, when they will be fit to take up. As he is an advocate for ſpring-planting, we muſt neceſſarily conclude, he thinks they ſhould alſo be taken up in the ſpring: yet this does not ſeem to be the caſe; for he adds, that they ſhould not be taken up till the ſtalks are perfectly decayed: now the time when the ſtalks decay is, undoubtedly, the autumn: we could therefore wiſh, for the ſatisfaction of his readers, he had been preciſe as to the time in which he thinks they ought to be taken up. N.

If theſe roots are taken up while the ſap is in motion, either early in the autumn, or late in the ſpring, they are apt to ſhrivel, and loſe much of their weight, and are, beſides, more diſpoſed to ferment, and periſh.

The beſt way of taking them up is, to dig the ground over as deep as the principal roots run, having pickers ready to gather up the roots as faſt as they are thrown up by the ſpade.

My general practice is to get rid of my roots as ſoon as I conveniently can; and I find it better ſo to do, than to wait for the riſing of the markets. I have had, from one acre of fine, freſh, rich land, above 3000 pounds of ſaleable root, which has produced me above ſixty pounds; but this many years ago, my crops not being in general now ſo large.

When I have taken up a crop of this root, if it was planted on freſh land, I generally prepare the ſame ground to yield me another crop; and this takes me near a year.

I, in the firſt place, give it, during the winter froſts, a thorough good dreſſing of well-rotted dung, mixed with lime: of this I lay on large quantities, ſtill having regard to the condition of the ſoil, and plowing it well in the enſuing ſummer.

In ſuch looſe ſoils, as are proper for this plant, there is no occaſion to dig the land for this crop, the taking up the roots having ſtirred it to a great depth: this, with three or four ſummers plowings, is ſufficient.

As to the reſt, I manage the ſame as I did for the preceding crop.

If the land, which has borne me a crop of liquorice-root, was not freſh land when it was planted, but had been any time in tillage, I ſcarcely ever chuſe to plant it again with the ſame crop, without allowing ſeveral years of interval *, at

* This practice of our correſpondent we eſteem very judicious, though many liquorice-planters in Yorkſhire and Surry make no ſcruple of taking three or four ſucceſſive crops of this root off the ſame land. By this means their profit is greatly leſſened, and it diſcourages others from attempting its culture. N.

at leaſt ſeven; but in this caſe, I frequently ſow oats in the ſpring, to abate the rankneſs of the ſoil; and it will then, with a very ſlight dreſſing, give me a good crop of wheat.

In my method of cultivating this plant, I always allow ſpace enough for the roots to extend in ſearch of food; and this is my reaſon for planting my rows at two feet diſtance: I am, beſides, very careful of keeping them clear of weeds, and that, particularly, during the firſt ſummer; being very ſenſible that, without this precaution, they would be in great danger of being choked up, and robbed of their proper ſhare of nouriſhment; particularly, they would receive no benefit from the dews, which are ſo friendly to vegetation; and even the ſun's warmth would be, in a great meaſure, kept from the roots by the ſhade of the weeds.

Many, who plant liquorice, allow much leſs ſpace than I do betwixt the rows, and will yet, the firſt ſummer, take off a crop of onions, or ſpinage, or young carrots, and think it ſo much clear profit; but the queſtion is, whether theſe crops may not, during the time they are on the ground, be to all intents and purpoſes deemed weeds, having nearly, if not altogether, as bad effects, as weeds would have if permitted to grow with the crop *.

Some, worſe farmers, continue this practice two years of its growth; but it is quite needleſs to condemn this method of culture, as it cannot but ſtand ſelf-condemned.

In the dreſſings I give my land, for preparing it to receive this plant, experience has convinced me that lime is a much ſweeter manure than ſtable-dung: in fact, this laſt is not, on any account, to be uſed till it is quite rotten, and then lime is very properly added to it as a corrector.

Some friends of mine, who live very near London, have attempted to cultivate this plant on their lands; but they

* Mr. Miller thinks a crop of onions may, without damage to the roots, be taken the firſt year: we rather join with our correſpondent in thinking, that they would have nearly the effect of ſo many weeds, and do more damage to the crop than the value of them could poſſibly pay. N.

find it does not anſwer; and this, on account of the great richneſs of the ſoil, owing to the great quantity of London dung laid on it. It is true, the roots were at three years end larger than mine; but they were not ſo bright, but had a blacker coat, and were deemed greatly inferior in quality *.

Should any of your readers be inclined to cultivate this plant, by following theſe directions, not implicitly, but according to their diſcretion, the circumſtances of their ſoil, &c. conſidered, they cannot well fail ſucceeding.

I am, GENTLEMEN,

Your moſt obedient ſervant,

Croydon, Nov. 26, 1763. G. K.

NUMBER LXI.

A Letter to the Editors, recommending the Uſe of a Cutting-Box, for preparing Horſe-Meat.

GENTLEMEN,

I HAVE travelled over ſeveral parts of England, and have, of courſe, ſeen many methods practiſed in feeding plow and cart horſes.

Some half ſtarve them by not allowing a ſufficiency of corn; others, on the contrary, have their horſes too well fed, when they leave this buſineſs to the diſcretion of their plowmen, who moſt of them think a horſe cannot, if he works, have too much corn. Both theſe extremes ſhould, if poſſible, be avoided; yet it is no eaſy matter to do it.

I, for my part, never give my horſes any pure corn, but always make uſe of a cutting-box: in this my men cut their horſe-meat, which is unthreſhed oats, tares, peas, or beans: they cut off the heads where the corn lies, and, beſides, take a cut or two of the ſtraw to mix with it.

This

* Mr. Miller ſays nearly the ſame thing of the lands near London.

This my horſes eat inſtead of corn, and they are very fond of it, it being very nouriſhing food; and there is no danger of their being ſurfeited with it, which they often are with pure corn, many of their diſorders ariſing from their being over-fed.

As I think it a great pity that this method of feeding horſes ſhould not be adopted in other parts of England, I herewith encloſe you a ſketch of the cutting-box, to be engraved for your work; by which your readers may ſoon have others made, as a workman will at firſt ſight conceive the form of it, from the drawing I ſend you; and it is afterwards eaſily made, even by an indifferent hand *.

a, is the box wherein the ſheaves of oats, peas, &c. are laid to be cut; b b, an iron plate with which the mouth of the box is lined: c, is the cutting-knife; d, a reſt for it when not in uſe: f, is the ſweep, whereby the cutter plays up and down when in uſe, and has by that means the greater purchaſe and power. As to the reſt of the form of it, the legs, *&c.* the plate will ſufficiently direct the workman.

I cannot enough commend the uſe of this cutting-box, though I am perſuaded the plowmen will endeavour to prepoſſeſs their maſters againſt it, becauſe the cutting of the horſe-meat is pretty tough work, and they do not, in general, love to do more than they can help.

When oats, beans, peas, or tares, are intended to be thus cut for horſe-meat, it is beſt to mow them before they are quite ripe, as by that means fewer of them will be loſt by ſhaling, and the ſtraw, or ſtalks, will be of better quality, and more nouriſhing for the cattle.

Care muſt be taken that the crop be well dried before it is houſed, or, as it is cut when it is in ſap, it may heat in the mow, and take great damage, if not ſet the barn or ſtack on fire.

I have only to obſerve, that this horſe-meat ſhould be cut freſh and freſh, as the cattle want it, or by being ex-

* See fig. 1. plate 2.

poſed to the air it will harden and become diſagreeable to their palates, and this will cauſe them to nauſeate their neceſſary food. I am,

GENTLEMEN,

Canterbury, Your humble ſervant,
Nov. 30, 1763. A FRIEND to your WORK.

NUMBER LXII.

A Letter to the Editors, on the Culture of Horſe-Beans in the Iſland of Thanet, *and the Uſe of the* Shim, *or* Kentiſh *Horſe-Hoe.*

GENTLEMEN,

I Believe I have already informed you, that the farmers in this iſland are an intelligent, ſenſible, ſet of men; they are not ſlaves to old cuſtoms, but are always willing to improve their methods of huſbandry, by adopting ſuch new practices as are in other places warranted, by experience, to be good.

To this may we, with great juſtice, aſcribe the delightful appearance the face of the country in this neighbourhood wears: the beauty of nature, in itſelf ſo charming, is greatly ſet off by the ornaments of agriculture: a pleaſing varied ſcene entertains the eye, whilſt the underſtanding is employed in meditating on the great advantages that reſult from honeſt induſtry.

It is not a great number of years ſince the farmers in theſe parts have known the uſe of horſe-beans in huſbandry; they are now, however, fully ſenſible of the many advantages that reſult from the culture of them, well knowing that nothing prepares land better for wheat; the tillage they require whilſt growing, being of great ſervice towards killing the weeds, and ſeparating the particles of earth, ſo as to reduce them to a fine mould.

I muſt do this juſtice to the farmers of Thanet, to ſay that their method of cultivating beans is the moſt perfect of any I have ever ſeen. Was Mr. Tull living, he would undoubt-

undoubtedly be delighted to ſee them following, almoſt literally, his inſtructions: the ſpirit of them, at leaſt, they have entirely adopted; and this you will confeſs, when I deſcribe to you their uſages.

The land they intend for horſe-beans they generally plow as ſoon as the wheat-ſeaſon is over, perhaps about the beginning of December. At this time ſome of the occupiers of the richer lands lay on their dung, in order to fit them for a wheat tilth; others do not lay on their dung till the beans are off, in which caſe they generally make a maxhill * on ſome corner of the land: under this, if they can procure it, they lay ſome rich mould, and they always contrive to turn it once, if not twice, in the ſummer, that the dung may be perfectly and regularly rotted †: by this management it is at hand to lay on the land immediately after harveſt.

After the land has got the plowing above mentioned in the beginning of December, they let it lie quiet till about the middle of March, when they give it another plowing; after which they furrow the land, as they call it; that is, they draw furrows over the whole field, at about the diſtance of two feet and a half one from the other.

In theſe furrows the beans are dropped ſingly, by women who are accuſtomed to the work, and do it very well; but if they cannot get women enough, a ſeeds-man carries them in a box, and ſprains them thinly out of his hand as he walks by the ſide of the furrow: the whole is then harrowed over, and in this manner the ſowing is finiſhed.

By thus ſowing their beans in rows, with intervals, they have an opportunity of always keeping their land clear of weeds, and of giving the beans, whilſt growing, freſh ſupplies

* *I. e.* a dung-heap.

† Dunghills ſhould be frequently turned, during the ſummer ſeaſon, not only to make them rot equally, but alſo to deſtroy the weeds that are apt to grow on them; for, if theſe weeds are ſuffered to perfect their ſeeds, they will ſhed them on the dung, which will then of courſe do more hurt than good to the land, by ſtocking it with a variety of weeds, very difficult to be extirpated. O.

plies of nouriſhment by frequent tillage. Such weeds as grow among the beans, in the rows, are pulled up by hand: as to the weeds that grow in the intervals they have a much more expeditious way of getting rid of them; and this they effect by means of a *ſhim*, or brake-plow, drawn by one horſe, with which a man, and a little boy for a driver, will clear of weeds, two acres, or two acres and a half, in a day. They ſometimes uſe two of theſe *ſhims* together, when a man or boy goes between the horſes to guide them. In this manner a great deal of work may be done in a ſhort ſpace of time.

The *ſhim* conſiſts of a frame of wood, in the two ſide-pieces of which are mortiſes to admit the cheeks of the ſhare, which have holes in them to be raiſed, or lowered, by means of iron pins, at pleaſure. I have herewith ſent you a drawing of this *ſhim*, by which the form of it may be much eaſier comprehended than by any deſcription I can give in writing*.

AA, are the billets to which the horſes traces are faſtened: BB, is the iron ſhare, ſomething like a hoe, generally broad enough to clear an interval at twice: c c, are two iron pins which are put through the holes in the cheeks of the ſhare, to raiſe it higher, or let it down lower.

This then is the inſtrument they uſe to keep their beans clear of weeds: it is a kind of horſe-hoe, or cultivator, very ſimple in its conſtruction, yet of infinite uſe. At the ſame time that it cuts up the weeds, it looſens the earth about the roots of the plants, and gives them every hoeing a freſh ſupply of wholeſome food.

To this may we aſcribe the flouriſhing ſtate of the bean-crops in this neighbourhood: the plants have room to ſpread their roots, and branch in their ſtalks; they enjoy all the benefit they can receive from the influence of the ſun and air; and, by means of the intervals, they enjoy a frequent and repeated tillage during their growth. Horſe-beans, in general, love a ſtiff ſoil; but, by mere dint of good huſbandry, theſe farmers get large crops of beans, on land

* See fig. 2. pl. 2.

land which a common obſerver would not think capable of bearing ſcarcely any at all.

When the beans are full podded and ripe, which may eaſily be known by their appearance, the better ſort of farmers cut or reap them in a manner almoſt peculiar to this part of the kingdom.

The workman has in his left hand a hook of iron, called a *hink* *, having a wooden handle like a ſickle, or reaping-hook: with this they gather the beans together, which they afterwards immediately cut with an inſtrument called a *twibil* †, which they have in their right hand. In this manner they diſpatch a great deal of work in a day.

Some farmers pull the beans up by the roots; but this is when the crop happens to be but thin.

When the beans are either cut or pulled, they let them lie in rows on the ground till they are dry, when they bind them up in bundles, with bonds made of wheat-ſtraw; the ears of which have been previouſly threſhed.

Of the *hink* and *twibil* I have alſo ſent you a drawing, by which your readers may readily conceive a proper idea of their uſe ‡.

What I have ſaid, reſpecting the culture of horſe-beans in Thanet, may poſſibly induce your readers to entertain a favourable opinion of the principles of the new huſbandry, to which it very nearly approaches: in fact, there ſeems to be no difference, except that the ſeed is not ſown out of a drill-box, which would be, perhaps, a more regular way of doing it, as well as leſs expenſive, than to have women drop the beans in the furrows. I am,

GENTLEMEN,

Margate, Nov. 15, 1763. Your moſt humble ſervant,

RUSTICUS.

* See fig. 3. plate 2.

† See fig. 4. plate 2.

‡ The regularity with which theſe beans are ſown, makes it much eaſier to cut them with the *twibil* and *hink*, than if they were ſown at random. Upon the whole, we cannot enough recommend this method of cultivating either horſe-beans, or broad beans. O.

NUMBER LXIII.

A Letter to the Editors, from a Member of the Society, on the Mechaniſm of Mowing with the Hainault *Scythe, and the moſt probable Means of bringing it into common Uſe, together with Hints towards eſtabliſhing Societies of Agriculture in various Parts of the Kingdom* *.

GENTLEMEN,

AS a member of the ſociety of arts, I have had an opportunity of inſpecting carefully the ſcythes that were laſt harveſt ſent down into Northamptonſhire, to be tried in mowing wheat.

The Hainault ſcythe alone is ſaid to have ſucceeded in theſe trials: as to the other two, they are not taken the leaſt notice of in the certificate that was ſent to the ſociety relative to this affair.

On examining theſe ſcythes, that invented by Monſ. de L'Iſle, fig. 1, and 2. of your plate, page 160, more particularly attracted my attention, as reſembling moſt our common ſcythes in form. This, Monſ. du Hamel ſays, has ſucceeded in ſome experiments that have been made with it lately in France; but I own I think the ſtraightneſs of the handle is an objection: in this, however, I may be miſtaken. As to the reſt, I ſhould not imagine it any very difficult matter to bring it into uſe; eſpecially as a very ingenious correſpondent of yours tells the world, in a piece marked Numb. LIII. that they mow beans, in the vale of Ayleſbury, in the ſame manner Monſ. de L'Iſle recommends his wheat to be mowed: theſe workmen, then, would ſoon be perfect, with a very little inſtruction, in this way of mowing wheat.

The next ſcythe, fig. 3, and 4. in the above plate, ſeems very well calculated to be uſeful; but whether it is particularly ſo in mowing wheat, I own myſelf at preſent not a com-

* For this letter the public is obliged to the ſame gentleman who favoured us with No. XXIX.

competent judge: I ſhall, therefore, forbear ſaying more on the ſubject, leaving it to be handled at large by ſome of your intelligent correſpondents.

I now come to the Hainault ſcythe, which took me up a conſiderable ſpace of time to inſpect; and this as well on account of its very extraordinary form, as the wonders that were told of its performances, even in the hands of common reapers.

This ſcythe is, in your plate above mentioned, repreſented by the fig. 5. and 6; and fig. 7. is the hook that is uſed with it: this hook the mower carries in his left hand, in order to favour the ſtroke of the ſcythe. The blade of the ſcythe, fig. 5. is but ſhort, and, of courſe, makes the inſtrument the lighter; the handle is very well adapted to its being uſed with one hand, the reſt, or ſhoulder, c d e, being of great ſervice.

This inſtrument is, I ſay, upon the whole, very well adapted to the purpoſe for which it is intended; but the mechaniſm of mowing with it, is ſo very different from that in uſe with the common ſcythe, and even from the motion or operation of the ſickle, or hook, that it will not ſpeedily be brought into uſe by merely putting it into the hands of the workmen; and even trying to inſtruct them in the manner of mowing with it will anſwer very little purpoſe.

The writer of the piece ſigned A. B. above referred to, and marked No. LIII. has very judiciouſly pointed out to the public an eaſy method of bringing Monſ. de L'Iſle's ſcythe into uſe, by putting it into the hands of the Ayleſbury-vale men, who would ſoon be expert at mowing with it, as they now mow their beans *in ſwarth.**

If I miſtake not, I can alſo put the public, the gentlemen of Northamptonſhire in particular, into a way of bringing the Hainault ſcythe into perfect uſe, without having their ſervants and labourers murmur at being half killed with work they are not accuſtomed to.

I had ſome months ago, towards the end of harveſt, occaſion to make a journey into Kent, where I ſaw ſome men

* See No. LIII. *paſſim.*

getting down a field that had a full crop of beans. Their manner of working immediately attracted my attention, for they did not pull them up by the roots, neither did they cut them with a hook in the common way, as is practiſed in many counties.

Till I came near them I thought they were cutting with both hands, as each hand held an inſtrument, and each was in continual motion. I ſoon, however, diſcovered the nature of this operation, and found that each labourer had in his right hand a cutting inſtrument called a *twibil**, and in his left a ſort of a hook called a *hink* †: I have encloſed you a drawing of each, that your readers may, without trouble, immediately conceive the form of them.

With the hink they took hold of a parcel of beans, which they afterwards very expertly, and with great expedition, cut with their twibil.

The novelty of this manner of cutting beans pleaſed me greatly, eſpecially as I had ocular demonſtration that it was an excellent method.

This determined me to be very particular in my obſervations, as I intended to introduce the practice in ſome farms I have in a neighbouring county; being fully of opinion, that any thing which tends to expedite the works of huſbandry cannot but be uſeful and advantageous to the landholder, and the community in general.

When I returned to town I found the ſociety deeply engaged in examining the affair of the Hainault ſcythe, and it immediately ſtruck me, that the Kentiſh men I had ſeen cutting the beans would very ſoon be expert at uſing this ſcythe.

Prepoſſeſſed with this idea, I examined more and more into the nature of the two operations, and found in the end ſuch an analogy betwixt them, that I could not refrain imparting my thoughts to the public through the channel of your uſeful work.

The Hainault ſcythe and the twibil are both uſed by the right hand, and there is no material difference in the ſtroke of

* See fig. 4. plate 2. page 262. † See fig. 3. plate 2.

of the two inſtruments. The hook uſed with the ſcythe, and the hink with the twibil, may both be conſidered as directors and ſecondary inſtruments; and the mechaniſm of motion in each is identically the ſame. Muſt it not then appear very plain to your readers, that a Kentiſh man, who can uſe the twibil and hink in cutting beans, would very ſoon, with but little inſtruction, be expert in the uſe of the Hainault ſcythe and its concomitant hook?

For the reaſons I have already mentioned, I would earneſtly recommend that the ſociety's agents get, next harveſt, ſome Kentiſh workmen, that have been uſed to the twibil, to try what the Hainault ſcythe is capable of doing. It is not enough for a man to mow half a rood of corn, and from the time he did it in calculate how much may be done in a day.

The way to determine this matter with the neceſſary preciſion, will be to have a number of the ſcythes made, and to let them be wrought with during the whole harveſt: it will then be ſeen whether they diſpatch more work in a given time than ſickles could do.

I have no doubt but the Kentiſh workmen would, in a day or two, be able to work with them as well as the people of Flanders; and if they were found to anſwer, they could ſoon inſtruct the other labourers * who had perhaps never ſeen a twibil, and conſequently would not be quite ſo apt to learn the uſe of the Hainault ſcythe as themſelves.

Our labourers in general, as well as the lower ſort of ignorant farmers, are ſtrangely averſe to every innovation, and more particularly ſo to any thing they think *outlandiſh*. Fond of their fathers cuſtoms, they can ſeldom be prevailed on to change them and adopt others, though fully convinced theſe laſt are moſt eligible. They think it eaſieſt walking in the old beaten track, and if you attempt reaſon-

* We approve much of our correſpondent's ſentiments on this head, being ſenſible there is a ſomething in the Engliſh labourers which prevents their ſubmitting willingly to be inſtructed by a foreigner. O.

ing with them, will tell you, *the way that they know will always ſeem ſhorteſt.*

Since this is the diſpoſition of the men who muſt execute all the works of huſbandry, we muſt not be too haſty in our improvements. It is not only neceſſary to find out new methods of doing the ſeveral works in huſbandry; but if we will have them adopted and brought into practice, we muſt either contrive to inſtill a habit of reaſoning into obſtinate, ſelf-willed clowns; or ſo diſguiſe the innovation, that they may not be ſhocked at the novelty of it.

I have been myſelf much uſed to theſe human machines, and could never get any of them to change an old cuſtom, unleſs I addreſſed myſelf either to their eaſe or their profit.

Many of them are either naturally, or habitually, lazy: theſe you influence by perſuading them that the work may be *eaſier* done in your manner: this will induce them to make the attempt, and ten to one but experience confirms them in the practice.

Others are to the laſt degree mercenary; but theſe are at any time to be bought off their obſtinacy; for, make it but worth their while, and they are as pliant as you pleaſe: but no longer pipe, no longer dance. The misfortune is, that as ſoon as their extra profit ceaſes they generally relapſe into their old track, unleſs, by practiſing what you taught them, on their own accounts, they can encreaſe their earnings.

Nothing can truly, effectually, and expeditiouſly promote the improvement of agriculture, but the gentlemen ſetting the example in the ſeveral counties. The neighbouring farmers will, perhaps, for a time look with aſtoniſhment, at the new and improved methods of culture, ſo different from what either they or their fathers have ſeen: but when they perceive the expence and trouble of this new huſbandry leſs, and the crops conſiderably larger, their intereſt will, by degrees, prompt them to imitate what cannot in the practice but turn out to their advantage.

I have ſaid that gentlemen muſt ſet the example; but by this I do not mean their holding a farm in their own hands, and truſting the care of it to a mercenary, and per-

haps ignorant bailiff, who is beſides, probably, a broken farmer; no, this is doing but little ſervice to the public, and generally great injury to themſelves: for it is in the country thought no ſin to cheat a gentleman, becauſe he can afford to loſe; and if a gentleman does not look into his own affairs, he muſt in courſe be cheated.

I would not have any gentleman attempt farming, who has not a taſte for it; and if he does attempt it, let him be content to dedicate a certain portion of his time to ſuperintend every thing that is done on his land; let him not truſt to other eyes than his own; if he does, he will probably be deceived: and in his improved practice, he muſt be particularly careful, that the men who are to execute his orders be punctual and diligent in their duty.

Theſe inferior inſtruments, as I have already obſerved, are great enemies to innovation, and on that account often ſlight the work they do not like to do, and ſometimes even purpoſely do it wrong. It is on this account I would recommend the maſter's inſpecting the execution of every material part of his work.

In this manner gentlemen may be of real uſe in the countries where they live: they can afford to make experiments beyond the reach of a common farmer; and I will venture to ſay, that if they are judiciouſly and prudently made, if but one in twenty ſucceeds, they will be amply repaid all the expences they will be at, and well ſatisfied for all their loſs of time and trouble, beſides the thanks that will be due to them from their grateful country.

Many fondly imagine, becauſe they ſee England comparatively in an improved ſtate, that agriculture is in this iſland brought to its utmoſt perfection; but theſe are ſuperficial obſervers indeed: we, that have had experience in the practical part of it, are fully ſenſible how very defective it is in many particulars.

I ſhall be glad to ſee that patriotic ſpirit kindled in England, which has of late made its appearance in France and Switzerland: in theſe two countries there are many ſocieties eſtabliſhed for the improvement of agriculture. Why might

might not we have ſuch a ſociety in every county in England? I am very certain that the excellent ſociety, of which we are members, would vigorouſly co-operate with them in all their public-ſpirited meaſures.

Permit me, Gentlemen, on this occaſion, to praiſe you for your zeal for the good of your country: you have already excited, in ſeveral parts of England, a communicative ſpirit, which, I hope, will yet be more generally infuſed. We ſee, in your monthly collection, a variety of letters on diverſe, though equally intereſting ſubjects; and I hope your correſpondents will daily encreaſe, that you may not, through a want of that neceſſary encouragement, be obliged to be irregular in your patriotic and uſeful publication.

Would our country gentlemen form themſelves into the ſocieties I have mentioned, where could they find a more proper channel to convey their thoughts to the public, than your collection, which, with pleaſure I ſay it, is already much read, and greatly approved of?

I have, in this letter, ſaid a great deal on the improvement of agriculture; but, miſtake me not, I do not mean that it ſhould be brought about by any ſudden revolution: old ſyſtems, though erroneous, are not to be at once totally rejected.

I approve much of moſt of the principles of the late Mr. Tull's method of huſbandry; yet would I not preſume at once to effectuate a total change, eſpecially as the new practice is, in almoſt every part, ſo eſſentially different from that commonly in uſe.

Things may be carried too far; and this was the caſe with Mr. Tull, when, ſpinning out his principles to too great a degree of nicety, he ſowed wheat ſo long on the ſame land, without any aſſiſtance of manure, that he, at laſt, had ſcarcely any crops at all.

This was, in fact, hurting the cauſe he meant to defend: it was ſufficient that he had proved tillage to be of more ſervice to land than manure: what occaſion could there be to aſſert that land would do well without any manure at all? This was the rock Mr. Tull ſplit on; and

this

this is often the caſe with people who are too fond of their own ſchemes.

Yet, in condemning Mr. Tull's imprudence, let us not deprive him of the ſhare of honour that is ſo juſtly his due: he was undoubtedly the greateſt man, in his way, this nation has for a long time produced; he loved his country, and luckily hit on a very proper method of eſſentially ſerving it: but, unluckily for us, prejudice ſtepped in and prevented our enjoying the benefit of his improvements: we were blind to their value, till they were pointed out to us by our rivals the French; *they* firſt had Mr. Tull in honour, *they* firſt adopted his principles, and put his methods in practice.

We wanted a *Monſ. du Hamel* in England, intelligent, ſenſible, perſevering, and public-ſpirited: what a figure would ſuch a man have made in this free and grateful iſland, eſpecially at this enlightened period!

I am inſenſibly run into a greater length than I at firſt intended: I thought only to have given you a hint or two reſpecting the method of bringing into common uſe the Hainault ſcythe; but you muſt excuſe me: if you are crouded this month, retrench what is ſuperfluous in this letter: imagine me like a lover talking of his miſtreſs: I am fond, nay more than fond, of agriculture; and it is natural, you are ſenſible, to talk moſt of what we are fondeſt of.

Before I conclude, I muſt obſerve one thing more. Monſ. Roland is very capable of inſtructing ſome of our men, the Kentiſh men in particular, to whom it will not be ſo ſtrange, in the uſe of the Hainault ſcythe; but I could wiſh the ſociety would be at ſome expence to procure from France and Flanders ſome men capable of uſing the other two ſcythes: this would not coſt much, ſuppoſe about thirty pounds; more than three times which ſum we often give for a paltry piece of painting; paltry, I ſay, when compared to fine pictures. I hope, however, this will be taken into conſideration, and that the practice of mowing

wheat

wheat may be ſpeedily introduced with its greateſt advantages.

I am, GENTLEMEN,

London, Dec. 4, 1763. Your very humble ſervant,
A SILENT MEMBER.

NUMBER LXIV.

A Letter from a Member of the Society of Arts, &c. to the Editors, on the Preparation and Making of Bay Salt in England.

GENTLEMEN,

BEING yeſterday at a meeting of the ſociety, I with great pleaſure and ſatisfaction heard it reſolved, that a premium of one hundred pounds ſhould be given to the perſon who ſhall make at any one ſalt-work, hereafter to be eſtabliſhed in England, the largeſt quantity of bay ſalt, not leſs than twenty tons, within the ſpace of the enſuing year; and for the ſecond greateſt quantity, not leſs than fifteen tons, the ſum of fifty pounds in like manner.

This premium, which is excellent in its kind, is founded on the prodigious quantities of bay ſalt, which are annually imported into this kingdom, and the hint was taken from a treatiſe publiſhed by the very ingenious and learned Doctor *Brownrigg*, entitled *The Art of making Common Salt*. This work is well worth the peruſal of your readers, eſpecially as it contains the whole proceſs for making bay ſalt, as it is now practiſed in other countries, and might be to advantage practiſed in England.

I ſhall in the notes refer your readers to the ſeveral parts of Doctor *Brownrigg*'s treatiſe, which mention bay ſalt, and the proceſſes for making it.

He begins with deſcribing its nature *, and the different methods of preparing it abroad, and firſt mentions the manner

* We have thought proper, for the benefit of ſuch of our readers as may not have an immediate opportunity of ſeeing Doctor

manner of its being concreted, by the water being totally exhaled, by the force of the ſun and air *, of which he gives ſeveral inſtances.

This ingenious writer then gives a circumſtantial account of the manner in which bay ſalt is prepared in the Cape Verd Iſlands †; and the method in which that trade, if

Doctor Brownrigg's curious treatiſe, to extract the parts referred to in his notes. Where the Doctor defines the nature of bay ſalt, he ſays, "Bay ſalt may be divided in general into two "kinds. Firſt, bay ſalt drawn from ſea water; as is practiſed "in France, Spain, Portugal, and many other countries. "Secondly, bay ſalt extracted from ſalt ſprings, ponds, and "lakes; as at the Cape de Verd iſlands, in Africa; and at Salt-"Tortuga, Turks Iſland, and many other parts of America."

* "Bay ſalt is prepared in a manner the moſt ſimple and "eaſy, when the water of ponds and lakes impregnated with "ſalt is totally exhaled, by the force of the ſun and air, and "the ſalt is left concreted into a hard cruſt, at the bottom of "the lake or pond.

"Of ſalt thus prepared we have many inſtances in ſeveral "parts of the world. Thus, *In the Podelian deſert near the "river Boryſthenes is a ſalt lake, whoſe water, by the heat of the "ſun, is waſted, and turned to ſalt, like unto ice; ſo that the peo-"ple ride into it with horſes and waggons, and cut it into pieces, and "carry it away.* I was alſo informed by a worthy friend, who "long ſerved as a phyſician in the Ruſſian armies, that in the "ſame part of the world, viz. on the Ruſſian frontiers towards "Crim Tartary, he had, in the ſummer ſeaſon, travelled over "vaſt deſert plains, where grew neither tree nor herb, and "which, for many miles together, were covered over with "ſalt.

"We are told of a ſalina of this kind in the Weſt Indies, "called Garci Mendoza, forty leagues long, and ſixteen "broad. But the learned Doctor Shaw hath given us the moſt "accurate deſcription of ſeveral of theſe ſalines in the kingdom "of Algiers, which in winter are ſalt lakes, but dry plains in "ſummer; at which ſeaſon large quantities of ſalt are dug out "of them for ſale. Salinas of the ſame kind have been taken "notice of by travellers, in many other parts of the world; "but theſe already mentioned are ſufficient for our preſent pur-"poſe." *Brownrigg.*

† "The Cape de Verd iſles which afford bay ſalt, are chiefly "Mayo, Bonaviſta, and Sall. The ſubjects of Great Britain "have enjoyed the privilege of making ſalt, at certain ſalinæ "in the two firſt-mentioned iſlands, excluſive of all other na-

if it may be ſo called, is carried on by the Engliſh. This account is very curious, and will not only be inſtructive, but entertaining to your readers.

Our

" tions, ever ſince the marriage of king Charles the ſecond " with the infanta of Portugal. They do not pay any acknow- " ledgment to the king of Portugal for this privilege; only, " of late years, he hath impoſed a tax, paid by the Britiſh cap- " tains for every aſs which they hire of the inhabitants to car- " ry the ſalt to their boats. The time of making the ſalt, is " in the dry ſeaſon of the year; which, in thoſe iſlands, is uſu- " ally from the latter end of November, to the beginning of " July. Thoſe, therefore, who would load with ſalt, endea- " vour to be there in the month of December, or January. On " the weſt ſide of Mayo, or May, they bring their ſhips to " anchor in a pretty good road, at 100 or 200 yards diſtance " from the ſhore. As ſoon as they are on ſhore, they find " themſelves upon a bank of light looſe ſand, fifty or ſixty " yards broad; and when they have paſſed this bank, they " enter upon the ſalina, or ſalt marſh; which lies between the " ſand bank, and ſome ſmall hills beyond it. This ſalina is " a plain, about half a mile broad and a mile long, the " greateſt part of which is hollowed out in ſalt pits, filled at " the proper ſeaſon of the year with a ſtrong brine, or pickle " (as the ſailors term it), to the depth of about eight inches.

" Several writers aſſert, that this brine is only ſea water, " which flows through a hole in the ſand bank, like a ſluice, " and that, only at ſpring tides. Thoſe that I have converſed " with, who made ſalt there, could give no certain informa- " tion in this particular, only ſaid they had never ſeen any " ſuch ſluice, but had obſerved more brine in the ſalt pits at " ſpring tides, than at other times. But, as it is certain that " there are ſeveral ſalt ponds in Bonaviſta and Sall, which have " no communication with the ſea; and that all the ſprings " nigh the ſalina in the iſle of May have a brackiſh taſte, and " are impregnated with ſalt; and that the brine in the pits is " much ſtronger than ſea water; and that it is weakeſt in the " pits which are fartheſt from the ſea, growing ſtronger as it " falls by a gentle deſcent into the pits which are nigher the " ſhore; theſe and other reaſons ſeem to prove, that this ſtrong " brine does not proceed from the ſea, but ſprings from the " hills adjoining to the ſalt marſh. And this may poſſibly be " the caſe, although it ſhould be true, that the brine ſtands " higher in the pits at ſpring tides, than at other times: for " the ſea water, although it may not flow into the pits at ſpring " tides, may notwithſtanding at ſuch times riſe ſo high, as to

" pre-

Our author in the next place treats of marine bay ſalt, prepared in France, and other parts of Europe. He gives his

" prevent the brine from draining out of them through the " ſand; and may have the ſame effect with a dam, and ſo cauſe " the brine to ſtand higher in the pits at ſpring tides, than at " other times.

" However this be, it is certain that at the proper ſeaſon of " the year, the ſailors commonly find all theſe pits filled with " a very ſtrong brine, or pickle; but ſometimes, after long " droughts, they find it more ſcarce, and then dig little wells, " from which they fill their ſalt pits to the depth of eight inches. " The bottom of theſe pits is a kind of oozy mud that retains " the brine. The ſailors make them of various forms and ſizes, " according to their fancy. Thoſe who firſt arrive cleanſe out " as many of theſe pits from mud and dirt, as they have occa- " ſion for; the next ſhip's company do the ſame, and ſo ſuc- " ceſſively, till all the pits are taken up; and if any more ſhips " arrive, they are obliged to wait until thoſe who have poſſeſ- " ſion of the pits are ſerved. As the freſh water exhales from " the pits, the ſalt forms into cryſtals, which ſink to the bot- " tom of the brine. Twice a week they draw the ſalt out of " the pits with rakes into little heaps: and after the brine is " ſomewhat drained from it, they put it in barrows, and wheel " it to their large heap, where it drains further, and ſoon be- " comes hard and dry, and fit to be put on board their ſhips. " The inhabitants of the iſland willingly aſſiſt, for hire, in " making the ſalt; and alſo provide aſſes to carry it to the ſea " ſide; from whence it is conveyed, by boats, on ſhip-board. " And thus, if the weather be favourable, a large ſhip may be " loaden with ſalt in a fortnight; and frequently ſooner, when " (as it often happens) the ſailors, on their arrival, find the " pits full of concreted ſalt.

" But, on the contrary, it ſometimes happens, that the " rainy ſeaſon continues longer than uſual; and then, ſhips " have been delayed ſeveral months before they could get their " loading. At other times the rains have come on very ſoon; " or the ſea hath been ſo boiſterous with tornadoes (as it uſually " is for a conſiderable time before the rains ſet in) that no ſalt " could be ſhipped on board; or by reaſon of tedious paſſages, " ſhips have not arrived in due time. And by ſuch accidents, " many ſhips have been diſappointed, and forced to leave theſe " iſlands without their loading of ſalt.

" The ſalt is made exactly in the ſame manner at Bonaviſta as " at the iſle of May. The ſalinæ at both iſlands are nearly of " the ſame magnitude; that at Bonaviſta alſo lies beyond a " ſand-bank, which is about two hundred yards broad. But " the brine is there weaker and does not kern ſo faſt as at the " iſle of May." *Brownrigg.*

his readers a very curious extract from the tranſactions of the Royal Society; but his remarks and explanations of this account are moſt worthy of attention *.

I

* " Thoſe, who would make a ſalt marſh in France, com-
" monly chuſe a low plat of ground adjoining to the ſea, di-
" ſtant from the mouths of large rivers, but nigh a convenient
" harbour for boats or larger veſſels. This ground muſt be
" free from ſprings of freſh water, and no ways ſubject to land
" floods; and, if poſſible, ſhould have a clayey bottom; it
" ſhould alſo be defended from the ſea either by banks of riſing
" ground, or by an artificial mole raiſed for that purpoſe.

" The ground ſo choſen muſt be hollowed out into three ponds
" or receptacles. The firſt, into which the ſea water is uſu-
" ally admitted, may be called the reſervoir. The ſecond re-
" ceptacle (which is divided into three diſtinct ponds, com-
" municating with each other by narrow paſſages, and con-
" taining brine of different degrees of ſtrength) may be called
" the brine ponds. The third receptacle is furniſhed with an
" entrance, between which and the brine ponds there runs a
" long, winding, narrow channel; the reſt of it is divided in-
" to ſeveral ſhallow pits containing a fully ſaturated brine,
" which in them is converted into ſalt, and may therefore be
" diſtinguiſhed by the name of the ſalt pits.

" The firſt receptacle or reſervoir muſt have a communication
" with the ſea by a ditch defended on each ſide with walls of
" brick or ſtone; and made of ſuch a depth that by it all the
" water contained in the reſervoir and other parts of the ſalt
" marſh may flow out at low water; and by it alſo the ſea
" water may be admitted into the reſervoir at full ſea; ſo that,
" at neap tides, the marſh may be filled with ſea water to the
" depth of ten inches in the reſervoir; and conſequently at
" higher tides, to the depth of two feet, when there is occaſion
" to overflow the marſh, as is done in the winter ſeaſon when
" no ſalt is made; by which means the wood work is longer
" preſerved from decay, and the bottom of the marſh from froſt
" and other injuries. And in order that the marſh may be
" thus overflowed when occaſion requires, it is neceſſary that
" the ſeveral receptacles ſhould be ſunk ſo deep that the ground
" on all ſides may be ſufficiently elevated to keep in the ſea wa-
" ter at the depth above mentioned. The ditch between the
" ſea and the reſervoir muſt alſo be provided with a ſluice or
" floodgate, by which the ſea water may be admitted, retained,
" or let out, and the whole ſalt marſh drained as occaſion may
" require.

" The

I could refer your readers to many very curious articles in this book, reſpecting the making of common ſalt; but as that

" The ſeveral ponds or receptacles muſt not have their bottoms all upon the ſame level, but muſt be made of unequal depths; ſo that the firſt receptacle or reſervoir muſt be eight inches and a half deeper than the ſalt pits in the third receptacle. The three brine ponds, ſituated between the reſervoir and the ſalt pits, muſt alſo be of unequal depths, that adjoining to the reſervoir being the deepeſt, and that, which is nigheſt the ſalt pits, the ſhalloweſt; but all of them muſt be ſhallower than the reſervoir. And the three receptacles being thus conſtructed; the water ſtanding at the ſame height in them all, and forming with its ſurface one continued plain, will be ten inches deep in the reſervoir, when only an inch and a half deep in the ſalt pits.

" The judicious French author hath not given us any account of the length and breadth of the reſervoir and brine ponds, but ſome judgment may be formed of their ſize from his plan of the whole work. It will be better to err by making them too large, than too ſmall. In general, they ought to be large enough to furniſh the ſalt pits with a conſtant ſupply of brine fully ſaturated with ſalt; and for that purpoſe it is neceſſary to have them of different dimenſions in different countries, as will be hereafter explained.

" It is not neceſſary that the reſervoir ſhould be exactly of the form which the French author hath deſcribed, where the ground will better admit of another, that may be choſen. And even the brine ponds and ſalt pits may be made of different forms, if due regard be had to the general contrivance of the whole work.

" For the bottoms of the reſervoir and brine ponds any kind of tough, lean clay, or earth, that will hold water, may ſerve very well. The French make the bottoms of their ſalt pits of any blue or red clay they meet with; but in order to have a white clean ſalt, it is neceſſary that thoſe pits ſhould be carefully laid with ſome ſtrong cement that will retain the brine, and cannot eaſily be broken up. As to other particulars relating to the ſtructure of the French ſalt marſh, they are ſufficiently explained by the ingenious phyſician whoſe account is before inſerted.

" The marſh being thus conſtructed, the ſalt men, at the proper ſeaſon of the year, open the floodgate when the tide is out, and drain off all the ſtagnating water; and, if there be occaſion, repair the bottom of the marſh, and cleanſe its ſeveral receptacles from mud and dirt. Afterwards, when the tide riſes, they, by the ſame floodgate, admit the ſalt

" water

that would be beſide the preſent purpoſe, I ſhall refrain doing it.

To return to the important ſubject of making bay ſalt, our author is particularly curious in marking how the ſeveral kinds of bay ſalt differ from each other *; and this is a mat-

" water into the marſh, till it ſtands in the reſervoir at the " height of ten inches. In a day or two, moſt of the water in " the ſalt pits is exhaled, and what remains in them is a very " ſtrong brine. They then let in more ſea water; and ſo take " care, every two or three tides (oftener or ſeldomer as occaſion " requires) to admit as much water into the reſervoir as will " ſupply the place of that which hath been waſted in vapours; " conſtantly raiſing it to the height of ten inches in the reſervoir; and conſequently, to an inch and a half in the ſalt " pits. All the parts of the marſh are thus ſupplied with water out of the reſervoir; but the ſea water, which flows into the reſervoir, is not confuſedly mixed with the ſalt water " contained in other parts of the work: for, as the ſeveral " parts communicate only by narrow paſſages, it is provided, " that the ſalt water, flowing out of the reſervoir, never returns " there again; but gently flows along till it arrives at the ſecond brine pond, and afterwards at the third; being forced " forward by the ſea water, from time to time received into the " reſervoir. During this ſlow courſe, the watery fluid continually flies off in exhalations, and the brine is continually preparing for cryſtallization as it gently flows along, growing " ſtronger and ſtronger the nearer it approaches to the ſalt pits. " So that when it enters theſe pits, it is fully ſaturated with " ſalt. And particular care is taken to guard the entrance of " the ſalt pits with a long winding narrow channel; by which " means the ſtrong pickle contained in theſe pits is prevented " from returning back, and mixing with the weaker brine in " the brine ponds. Care is alſo taken that the ſtrong pickle in " the ſalt pits be ſpread out very thin to the ſun and air, with " a large ſurface; by which means the watery vapours more " quickly exhale from it, leaving the ſalt concreted into cryſtals. Theſe the ſalt men carefully draw out, and oftentimes " diſpoſe into large pyramidal heaps; which they thatch over " with ſtraw, and ſo preſerve them from the injuries of the " weather. Thus, at a ſmall expence and trouble, a ſalt is prepared which is found extremely fit for all domeſtic uſes; and " thus France is alſo furniſhed with a very profitable article for " exportation into foreign countries." *Brownrigg.*

" * The ſeveral kinds of bay ſalt differ from each other, " chiefly in the following particulars, *viz.*

" 1. *In*

a matter of more conſequence than may at firſt appear, as it may enable the makers, who may in future eſtabliſh manu-

" 1. *In the ſize of their cryſtals.* For bay ſalt, in proportion " as it lies a longer or a ſhorter time in the pits, or as the ſo- " lar heat, or force of the air, is more or leſs powerful, will " be formed into greater or ſmaller cryſtals. Upon theſe ac- " counts the French cream of ſalt, and the blown ſalt of the " iſle of May, which are ſkimmed off the ſurface of the " brine, are of the leaſt grain. The Portugal ſalt is com- " monly of a larger ſhoot than that of France; and that of " Tortuga, much larger than that of Portugal.

" 2. *In purity.* For there is ſcarce any bay ſalt which is " not mixed with ſeveral heterogeneous ſubſtances; as ſlime, " mud, ſand, and clay, which are raked up with it from the " bottom of the pits where it is made, or mixed with it whilſt " it lies on the ground in heaps. There are ſome kinds of bay " ſalt which are mixed with bitter purging ſalt, and probably " with other ſalts. From all which mixtures it acquires pecu- " liar qualities.

" 3. From the mixture of clays and earths it acquires *va- " rious colours.* The French bay ſalt is commonly grey; where " the bottoms of the pits are of blue clay, it is more white; " where of a red clay, it hath a reddiſh caſt; and that of Souſ- " ton, nigh Bayonne, is of a greeniſh colour. The Portugal " and Spaniſh ſalts are whiter and purer than the French, but " yet retain a conſiderable mixture of mud and dirt. In gene- " ral, all ſalt, when dry, is more white; when moiſt, more " pellucid.

" 4. Some kinds of bay ſalt are *more apt to contract a moiſture " from the air* than other kinds. And this either becauſe the " ſalt is of a ſmaller grain, and comes into contact with the " air in a greater number of points; or elſe, becauſe of ſome " mixture of calcarious, or alcaline ſalts, which greedily im- " bibe the aqueous moiſture.

" 5. Some kinds of bay ſalt are diſtinguiſhed by their *ſmell;* " as the Hampſhire and Portugal bay ſalts, which have a fine " violet flavour when ſtored up in large heaps; probably from " the oleaginous or ſulphureous particles mixed with ſea wa- " ter, or imbibed by it in the ponds, and there altered and " ſubtilized by fermentation.

" 6. Bay ſalt, from the variety of ſubſtances mixed with it, " differs greatly in *taſte,* as well as in other qualities. Thus, " according to Galen, the ſalt of the lake Aſphaltites, or " Dead Sea, is extremely nauſeous and bitter; probably from " bitter purging ſalt, and other mixtures. The ſalt made at

" the

manufactories, to diſtinguiſh how good, or how bad, the bay ſalt they prepare is; and, if bad, may enable them to find proper methods of remedying the evil in future.

I ſhall next proceed to mention Dr. Brownrigg's propoſitions, deduced from fair argument; where he deſcribes ſeveral proceſſes, by means of which bay ſalt may, to great advantage, be made in England.

In his firſt he obſerves that, *In ſeveral parts of England, large quantities of bay ſalt may be extracted from ſea-water, during the hotteſt months of the year; by receiving the ſalt water into ponds, and ſuffering its aqueous parts thence to exhale by the heat of the ſun, and the operation of the*

" the ſprings of Peccais in Languedoc hath alſo a bitter taſte. " Whereas the ſalt made in the Cape de Verd iſlands, Salt " Tortuga, and in many other places, from the water of " ſprings and lakes, hath a very agreeable taſte. Although " bay ſalt made from the ſame kind of water in different pits, " or from other different circumſtances attending its prepara- " tion, may differ greatly in taſte as well as in other qualities. " Thus the marine bay ſalt, although commonly palatable, " may ſometimes acquire a bitter taſte, from calcarious ſalts " mixed with it; as may happen after long droughts, when " the pits from which it is drawn have not been freed from " bittern.

" 7. Bay ſalt oft-times *alters in taſte, as well as in other qua-* " *lities, by long keeping.* The ſalt of Peccais for example, " which, when firſt made, is ſo nauſeous and bitter as to be " unfit for domeſtic uſes; by keeping, acquires a taſte that " is more agreeable: for the bitter purging ſalts being very " ſoluble in water, eaſily diſſolve by the moiſture of the air, " and ſink through the common ſalt in a liquid form, leaving " it more pure, and free from its bitter taſte. Theſe calca- " rious ſalts may alſo be frequently waſhed by rains from " amongſt bay ſalt, as it lies in heaps expoſed to the wea- " ther. Alcaline ſalts may, after the ſame manner, be diſ- " charged from amongſt common ſalt; or when long ex- " poſed to the air, may imbibe its volatile acid ſpirit, and " with it be converted into a neutral ſalt. And for theſe rea- " ſons, not only bay ſalt, but moſt other kinds of common " ſalt, become better and fitter for domeſtic uſes, by being " kept a conſiderable time expoſed to the air in a dry place." *Brownrigg.*

*the air and winds**. It is impoſſible not to admit the force of his reaſonings on this head, which, in fact, amount almoſt to a demonſtration.

The

* "If in ſome of the warmeſt and leaſt rainy parts of England a pond, at a moderate computation, uſually loſes ſeventeen inches depth of water in exhalations during the four hotteſt months, more than it receives from the heavens during the ſame time; then if a firm and tight pond be filled with ſea water to the depth of ſixteen inches in the beginning of May, all that water, together with the rains that fall into the pond, will be uſually thence exhaled by the end of Auguſt, and the bottom of the pond will remain covered with a cruſt of ſalt; as in ſummer may be obſerved on the ſea ſhore in hollows of rocks, where ſmall quantities of ſea water have been left by the tide, or, as is more obſervable in the ſalinæ before deſcribed, from which vaſt quantities of ſalt are annually collected.

"The evaporation of ſixteen inches depth of water by the ſun and air, is here ſuppoſed to take up four months: in rainy ſummers it may require a longer time, or even may not be effected during the whole ſummer. But it alſo often happens in many parts of England, that not an inch depth of water falls in a whole ſummer month, and the weather in ſuch dry ſeaſons being uſually very hot, half an inch depth of water may then be ſuppoſed to evaporate every day; ſo that the whole evaporation of ſixteen inches depth of ſea water will, in ſuch a dry ſeaſon, be performed in thirty-two days.

"The following calculation may give ſome idea of the quantity of ſalt, which may thus be extracted from ponds covered with ſea water to the depth of ſixteen inches. A cubic inch of pure water weighs about 256 grains; and if we ſuppoſe that the ſea water on the coaſts of England contains $\frac{1}{32}$ part of ſalt, then each cubic inch of ſea water will contain $\frac{256}{32}=8$ grains of ſalt; and ſixteen cubic inches 16 $\times 8=128$ grains. There would therefore remain after the evaporation of ſixteen inches depth of water 128 grains of ſalt upon every inch ſquare of the pond, and upon every yard ſquare 21lb. 9 oz. 288 grains averdupoize weight; and upon every ſtatute acre of ſuch ponds 104,544lb. or 1245 buſh. 64lb. of bay ſalt [1]. The price of which, if ſold for a ſhilling a buſhel, would be 62l. 5s. 9d. ſo that ground

 "rightly

"[1] *Bay ſalt now coſts at London, excluſive of exciſe, four ſhillings and four pence per buſhel.*"

bay ſalt. The proceſſes contained in the firſt and ſecond propoſitions above referred to may, with advantage, be brought

" *the force of the air, from a given quantity of water to exhale a* " *certain quantity given, in a given time*; for this may be done " by proportioning the ſurface of the water to the force of the " ſun and air, and to the quantity of water required to be ex- " haled in the time given.

" Should it then be required to make the ſame quantity of " bay ſalt at a ſalt work in England, as is uſually made at a ſalt " work of the ſame kind on the coaſt of France; that this may " be done, it is neceſſary that equal quantities of ſea water " (ſuppoſed at both places of an equal ſaltneſs) ſhould be re- " ceived into both works, and that the evaporation ſhould be " equal in both. Which would be the caſe, if the water in " the ſalt work in England be expoſed to the ſun and air with " a greater ſurface than in the French work; ſo that this greater " extent of ſurface may compenſate for the leſs force of the " ſun's heat: or, in other words, ſo that the whole ſurface of " the two ſalt works may be in a reciprocal proportion with " the evaporations from equal portions of their ſurfaces. For " example; if the evaporation from a certain part of the " French ſalt work be double to the evaporation from an " equal part of the Engliſh work, then muſt the ſurface of the " Engliſh work be double the ſurface of the French work. And " ſince an equal quantity of ſalt water or brine is ſuppoſed to " be contained in both works, therefore the Engliſh pits muſt, " in ſuch caſe, have only half the depth of water in them, that " is in the French pits. So that in the reſervoir, where there is " ten inches depth of water in the French work, there muſt be " only five inches depth in the Engliſh work, and in the ſhal- " lower pits in the ſame proportion.

" The foregoing calculations are made upon a ſuppoſition, " that it is dry weather, during the whole time that the water " is evaporating; but as in the ſalt marſhes this buſineſs is fre- " quently diſturbed by rains, it is neceſſary, in practice, alſo to " make an allowance for the water received from the atmo- " ſphere into the ſalt marſh during the evaporation; and upon " that account, to enlarge the ſurface of the Engliſh work yet " conſiderably farther. For ſuppoſing only the ſame quantity " of rain to fall into the Engliſh, as into the French ſalt work, " as the evaporation is ſuppoſed ſlower upon a certain part of " the Engliſh work than upon an equal part of the French " work, it is neceſſary, that the water falling into the firſt " work be ſpread over a larger ſurface, than that which falls " into the latter, in order that in both it may be exhaled in

" equal

brought into practice; but they have alſo their diſadvantages, when compared to the proceſs deſcribed in his third

" equal times. But as the ſurface of the Engliſh work is ſuppoſed larger than the ſurface of the French work, more rain may probably fall into it than into the French work; ſo that it may be neceſſary to extend the ſurface ſtill farther; and ſo to evaporate the exceſs of water, which it receives from the atmoſphere.

" How far it may be really neceſſary to extend the Engliſh work farther than a French work of the ſame capacity, in order to make an equal quantity of ſalt in each of them, can only be aſcertained by proper experiments. But all circumſtances being duly conſidered, we may reaſonably conjecture, that, in ſeveral parts of England, if a ſalt marſh was formed, whoſe ſurface was only a fifth or a ſixth part larger than that of a French ſalt marſh, as much ſalt, at leaſt, might be prepared in the Engliſh marſh, as in that of France. And if we conſider the ſituation of the French coaſt, how it muſt be watered with heavy rains from the weſtern ocean, we cannot ſuppoſe that leſs water falls there in rain and other aqueous meteors, than on the coaſt about Plymouth, which at a medium is thirty-one inches in the year; whereas on ſeveral of the warmeſt parts of the Engliſh coaſts there does not annually fall above twenty inches. So that during the ſummer ſeaſon more water will probably fall into the French ſalt marſh than into one of a fifth part larger ſurface, ſituated on the coaſts of Eſſex, Norfolk, or Suffolk.

" If therefore it ſhould prove true in fact, as in all probability it will, that as much ſalt may be extracted from an Engliſh ſalt marſh, as from one in France, when the ſurface of the former is one fifth larger than that of the latter: then, in order that both works may contain an equal quantity of brine [1], it will be neceſſary, that in the reſervoir where the ſalt water is ten inches deep in France, it be eight inches one third in England; and the ſalt pits where the brine is one inch and a half deep in France, it muſt be one inch and a quar-

" [1] *The following theorem may be of uſe in determining the depths of the ſeveral ponds, ſo that the two ſalt marſhes may be made to contain equal quantities of brine, viz.*

" As the ſurface of the broader pond in the Engliſh marſh, is to the depth of the narrower pond in the French marſh; ſo reciprocally the ſurface of the narrower, is to the depth of the broader.

" *Thus,*

The doctor has taken great pains in his calculations; but after all he obſerves, that it would not be adviſeable to make a trial of this method; eſpecially as that contained in the ſecond propoſition may be eaſily put in practice, which is far more commodious, expeditious, and certain. I only, therefore, refer your readers to the firſt propoſition, that they may the better be enabled to compare one method with another, and be thereby more competent judges which to prefer in practice.

In his ſecond propoſition, this very ingenious writer ſays, that *in ſeveral parts of England large quantities of bay ſalt may very commodiouſly be extracted from ſea-water, after the ſame manner that is practiſed in France, and in other parts of Europe* *.

Our

" rightly prepared might thus be made to produce annually " an excellent rich crop of ſalt, which would not require more " labour and expence than is neceſſary for crops of far leſs " value.

" But as the above method of preparing bay ſalt from ſea " water, is tedious and ſubject to miſcarry by rains, and the " ſalt ſo made could ſcarce be collected without mud, and the " calcarious earth, and other groſs ingredients of ſea water, " would remain mixed with it, it would not therefore be ad- " viſeable to make a trial of this method; eſpecially as the " following may eaſily be put in practice, which is far more " commodious, expeditious, and certain." *Brownrigg.*

* " The parts of England moſt proper for this work are thoſe " which are the warmeſt and leaſt rainy, as on the coaſts from " Dover to Yarmouth: although the ſame work will ſucceed " very well in other places [1]. For if ſuch large quantities of " bay ſalt can be prepared in France as are ſufficient for the " whole annual conſumption of that large kingdom, and of all " thoſe nations who purchaſe it from thence, and that in ſo " ſhort a time as one fortnight of good weather; why may not " large quantities be prepared in the above mentioned, and ſe- " veral other parts of England, during the whole ſummer ſea- " ſon? If ſalt can be extracted in France, even in the night " time, why may it not in England during the day? If bay ſalt " can be made in conſiderable quantities, and to profit, in the " ſun

" [1] *Particularly on the coaſt from Dover to Land's-end.*"

Our ſenſible author very judiciouſly leads his reader, by ſlow degrees, towards perfection, in the art of making bay

" ſun pans of Hampſhire [2], why not in larger quantities, and " to much greater profit, in ſalt marſhes, which are much more " artful and commodious?

" There are ſeveral parts of the Engliſh coaſt, which do not " lie above two or three degrees farther north than the coaſts of " Britany, where ſuch vaſt quantities of bay ſalt are made; and " particularly the coaſts above pointed out, where this ſalt is " chiefly wanted for curing fiſh and naval proviſions; where " the heat of the ſun is not much leſs than on the coaſts of Bri- " tany; where the winds and air will alſo have the ſame effect as " in Britany; and where, in all probability, there is conſidera- " bly leſs rain to retard the operation, than on the French " coaſts. So that it is not likely that this work would proceed " much ſlower in England than in France.

" But, that this may more plainly appear, let it be granted, " that the heat of the ſun is ſo much greater in Britany than on " the coaſts of Eſſex and Suffolk, that water will exhale even " twice as faſt in the firſt, as it does in the laſt mentioned pla- " ces, during the ſummer months. Allowing even this ſup- " poſition, it will be no difficult matter to ſhew, that ſuch an " inconveniency might be overcome; and that, under ſuch cir- " cumſtances, as much ſalt might be prepared in an Engliſh " ſalt marſh as in one in Britany, and with no great difference " of expence.

" Suppoſing, therefore, that from a ſurface of one yard " ſquare, as much water exhales in Britany, as from a ſurface " of two ſquare yards in England. And if we farther ſuppoſe " two cylindrical veſſels of equal capacities, but ſo formed, " that the ſurface of the fluid in one is double to the ſurface " of the fluid in the other, and that theſe veſſels, when filled " with water, are placed, that with the larger ſurface, in " England, and that with the ſmaller ſurface, in Britany: " then, according to the firſt ſuppoſition, equal quantities of " water will exhale from thoſe two veſſels in equal times, and " both veſſels, as they contain the ſame quantity of water, " will become empty in the ſame ſpace of time. And if the " water in both veſſels be of an equal ſaltneſs, an equal quan- " tity of ſalt will remain in each veſſel, after all the water is ex- " haled.

" It is therefore very poſſible to anſwer all the requiſites in " the following problem, viz. *By a moderate heat of the ſun, and*

" [2] *See the foregoing account of the method of making bay ſalt in* " *France.*"

third propoſition, which is much more perfect. In this he ſays, *Bay ſalt may be extracted in England from ſea-water in larger quantities, and with more certainty, than by the foregoing method; if care be taken to preſerve the brine, contained in the ſalt pits, from being diluted with rains, and to promote the evaporation of the water by ſeveral artificial means, which may eaſily be put in practice*.*

On

" quarter deep in England [2]. And care ſhould be taken to lay " the bottoms of the ſeveral pits in ſuch a manner, that the " depth of the brine in them may anſwer to the above men- " tioned proportions.

" The Engliſh ſalt marſh muſt be made larger or ſmaller, as " occaſion requires; ſo that care be taken to obſerve the above, " or ſuch other proportion in the dimenſions of its ſeveral parts, " as by experience ſhall be found moſt proper. In general, it " is neceſſary that the reſervoir and brine ponds be of a ſuffi- " cient magnitude to furniſh the ſalt pits with a conſtant ſup- " ply of the ſtrongeſt brine, in the place of that which is con- " tinually reduced to ſalt." *Brownrigg.*

* " Thoſe who are deſirous of preparing more ſalt than can be " done by the foregoing methods, and would have their work " leſs interrupted by rains, and would chuſe to have their " brine lie deeper in the ſalt pits, and to have the ſalt formed " into large cryſtals, may for theſe and other purpoſes have " recourſe to the following methods.

" Firſt,

" *Thus, if the ſurface of the French reſervoir be a hundred yards* " *ſquare, its ſurface will then contain* 5760000 *ſquare inches. And* " *the Engliſh reſervoir* $\frac{5760000 \times 5760000}{5} = 6912000$ *ſquare* " *inches. Then as the French reſervoir is ten inches deep, according* " *to the above theorem,* 6912000 : 10 : : 5760000 : $8\frac{1}{3}$. *And* " *the product of the two extremes will be found equal to that of the* " *two means, which give the ſolid contents of the French reſervoir* " *in cubic inches.*

" [2] *Suppoſing the French ſalt pits ten inches ſquare, their ſurface* " *will contain a hundred ſquare inches; and the ſurface of the Eng-* " *liſh ſalt pits (being one fifth of an inch larger)* 120 *ſquare* " *inches: then,* 120 : $1\frac{1}{2}$: : 100 : $1\frac{3}{12} = 1\frac{1}{4}$.

" *The ſame proportion will hold good, if the ſurface of the French* " *ſalt pits be ſuppoſed of any other magnitude.*"

On reading the proceſs referred to in the note, I dare ſay every impartial perſon will allow that the doctor has ſtudied

" Firſt, it will be proper to make all the ſalt pits of the " marſh, in one long row, extended from eaſt to weſt [1], and " for each pit to make covers of thin boards, or rather of " coarſe canvas, or ſail-cloth, ſtretched on frames of wood, " and painted white. Theſe covers muſt all be fixed with " hinges to ſtrong poſts and beams on the north ſide of the " pits, ſo that they may be let down and drawn up with cords " and pulleys, or by ſome other contrivance, ſomewhat like " draw-bridges. Theſe covers thus fixed may be let down over " the pits like a ſhed or pent-houſe, in rainy weather; and in " dry weather may be erected almoſt to a perpendicular, but " inclining a little towards the ſouth; ſo as to form a wall " with a ſouth aſpect, and thus may ſerve a double uſe, as " coverings for the pits in wet weather, and as reflectors of the " ſun's heat upon them in dry weather. For when they are " let down they will prevent the rain from mingling with the " ſtrong brine contained in the ſalt pits; and when they are " drawn up in ſunſhiny weather, they will ſtrongly reflect the " rays of the ſun upon the brine contained in the pits, and " thus greatly promote the evaporation of its aqueous parti- " cles. The hinges on which the reflectors turn may be fixed " about eight or ten inches from the ground. By which " means, when the reflectors ſtand upright, there will be an " opening left beneath them, through which the air will con- " tinually flow in a briſk current, and greatly encreaſe the " evaporation of the water.

" In order alſo that no diluted brine may flow into the ſalt " pits during rains, it will be neceſſary at ſuch times to ſtop " the narrow winding channel leading to the pits, by a little " ſluice. This channel alſo muſt be made very narrow, and " every where covered over with boards. And there muſt not " be a pond at the entrance of the ſalt pits, as in the French " marſh, but only a narrow covered trench, running parallel " to the ſide of the pits which is oppoſite to the reflectors. " And the pond, which forms the entrance of the pits in the " French ſalt marſh, muſt in this be detached from them; and " inſtead thereof muſt be formed a fourth brine pond, com- " municating with the third by a long narrow channel.

" If

" [1] *It will be alſo neceſſary to make the bottoms of the ſalt pits of* " *alabaſter, or ſome other ſtrong cement that will not eaſily break* " *up; by which means the ſalt may be drawn white and pure, as in* " *Spain and Portugal, and not dirty and grey, as in the French* " *marſhes.*"

ſtudied his ſubject well. The directions, he gives, are ſuch as will, probably, have the deſired effect; and are, beſides, to

"If theſe contrivances ſhould be reduced to practice in Eng-
" land, the ſalt will probably cryſtalize there much faſter than
" in the French ſalt marſhes. And the brine may be kept as
" deep, and even deeper there than in the French ſalt pits. In
" which caſe the Engliſh ſalt marſh will require fewer pits
" than in the method propoſed in the foregoing propoſition.
" And if a ſhower or two of rain chances to fall, the operation
" will only be retarded while the rain continues; whereas in
" the French open work, ſuch a quantity of rain falling often
" puts a ſtop to the work for two or three days, as all the
" freſh water that fell muſt again be exhaled, before any
" ſalt can be formed.

" But in order to prevent the weaker brine from being di-
" luted with rains; and in order alſo to provide a ſufficient
" quantity of brine which may always be ready to ſupply
" the place of that which cryſtalizes in the ſalt pits, it may
" be neceſſary to dig in the earth four ciſterns adjoining to the
" brine ponds above propoſed, which may be made tight at
" the bottom and ſides with brick and clay, into which the
" brine in the ponds may be admitted when the rainy wea-
" ther comes on, ſo that the brine of different degrees of
" ſtrength may run into ſeparate ciſterns, and may again be
" pumped out of them into the ſeveral ponds from which it
" was drawn, as ſoon as the weather grows dry, and the freſh
" water, which fell into the ponds, hath by proper drains been
" firſt diſcharged out of them.

" As to the ſalt water in the reſervoir, if it ſhould not be
" found neceſſary to preſerve it from rains in ciſterns; when
" ſo much rain falls, as to make it freſher than ſea water, it
" may be let out, and ſea water admitted into its place. And
" in order to promote the evaporation, and to make the ſalt
" water in the reſervoir fitter to ſupply the firſt brine pond with
" brine of a due ſtrength, it may be proper, by means of a
" ſmall fire engine, continually to force up the ſalt water in the
" reſervoir as often as occaſion requires, and by means of a di-
" verger fitted to the engine to make it deſcend again into the
" reſervoir like a ſhower of rain; by which means the eva-
" poration of the watery vapours will be greatly promoted,
" after much the ſame manner as is practiſed at ſeveral ſalt
" works in Germany where the brine is very weak.

" And thus by augmenting the force of the ſun's heat, and
" of the air, and by promoting the evaporation of the watery
" vapours, and by preventing the brine from being diluted

" with

to appearance, eaſily practicable. I am not without hopes but that, encouraged by the noble premiums offered by the ſociety, ſeveral ingenious perſons will, within the ſpace of the enſuing year, erect ſalt works on the doctor's plan, laid down in this propoſition; eſpecially as it will, moſt probably, turn out to their particular advantage.

By the three proceſſes hitherto mentioned it is propoſed to make the bay ſalt from ſea-water; but in the fourth propoſition the doctor diſcovers another method of procuring this neceſſary and valuable commodity. He obſerves, that *in ſeveral parts of England, large quantities of bay ſalt may, with great eaſe, be prepared from the natural brine of ſalt ſprings, and alſo from rock ſalt, diſſolved in weak brine, or ſea-water* *.

The

" with rain, it is very probable, that during the ſummer ſea-
" ſon double the quantity of ſalt might be prepared at an
" Engliſh work with theſe contrivances, that is now uſually
" prepared at a French ſalt marſh of equal magnitude."
Brownrigg.

* " In Cheſhire, where they have natural brine almoſt fully
" ſaturated with ſalt, if they ſhould think proper to extract bay
" ſalt from this brine, it may be pumped directly into ſalt
" pits (without any previous preparation) there to be wrought
" with reflectors, as deſcribed under the foregoing propoſition.
" Only, if there be any ochre or mud mixed with the brine,
" it may be proper to draw it firſt into covered reſervoirs or
" ciſterns, there to ſtand till theſe impurities are ſubſided, and
" from thence to let it out into the ſalt pits as occaſion may
" require.

" But if, as it commonly happens, the brine be not fully
" ſaturated with ſalt, then it may be expoſed to the ſun and
" air in brine ponds with reflectors fitted to them until it be
" reduced to a ſaturated brine, after which it may be received
" into the ſalt pits. Or elſe the weak brine may be fully ſa-
" turated with rock ſalt, where that can be had cheap, or
" even with white ſalt, if due encouragement be given by the
" legiſlature. Or where there is plenty of rock ſalt and no
" brine, freſh water, or ſea water, (if it can be conveniently
" had) may be ſaturated with it, and reduced to bay ſalt in ſalt
" pits with reflectors as before deſcribed.

" Thus large quantities of bay ſalt may be made from natu-
" ral brine at one operation, as is practiſed at the iſle of May

The greater the variety of the proceſſes of making it, ſo much the more advantage will naturally accrue to the manu-

" and in ſeveral parts of the Weſt Indies. Of the quantities " which can thus be extracted ſome conjectures may be made " from the following calculations.

" Suppoſe a ſalt pit ſixteen feet ſquare. A work conſiſting " of eighteen pits of the ſame ſize, placed all in a row, will be " ninety five yards long, and will be ſomewhat larger than the " ſalt pits of the French marſh before deſcribed. The area " of each of theſe pits will be two hundred and fifty ſix ſquare " feet, and if they are covered a quarter of a foot deep with " brine, then each pit will contain ſixty four cubic feet of " brine. But from [1] Dr. Baynard's experiments, a cubic foot " of common water weighs exactly ſeventy ſix pounds troy. " Therefore ſixty four cubic feet weighs $64 \times 76 = 4864$ pounds " troy. Suppoſing therefore each pound, or twelve ounces, of " brine to contain three ounces and an half of ſalt, then 4864 " pounds of brine will contain 17024 ounces or 1064 pounds " averdupois of ſalt, and eighteen pits of the ſame dimenſions " 19152 pounds, which is exactly 228 buſhels of ſalt, each " weighing eighty four pounds averdupois.

" But as a pound troy, or twelve ounces, of water, will diſ- " ſolve more ſalt than three ounces and an half; if therefore " the pits be filled to the depth of three inches with fully ſa- " turated brine, more ſalt will be contained in them than here " ſuppoſed. If it therefore be granted, as many affirm, that a " gallon, ale meaſure, of the ſtrongeſt Cheſhire brine, which " is almoſt fully ſaturated, holds three pounds averdupois of " ſalt, (which is very nigh a pound of ſalt to three pounds of " water) the $7059\frac{3}{47}$ gallons of fully ſaturated brine, ſuppoſed " as before to be contained in the eighteen ſalt pits, will hold " ſomewhat more than 21177 pounds, or two hundred and " fifty two buſhels nine pounds of ſalt.

" In order to eſtimate the time required to prepare the " above quantity of ſalt, let it be ſuppoſed (as with great rea- " ſon it may) that in dry ſummer weather, half an inch depth " of water will, one day with another, exhale from the ſalt pits " when wrought with reflectors. Then three inches depth, " the quantity of brine contained in the ſalt pits, will be ex- " haled in ſix days; ſo that at the end of ſix days all the ſalt, " contained in the brine, will remain dry at the bottom of the " pits; which, according to the firſt ſuppoſition, is two hun- " dred and twenty eight buſhels of bay ſalt; and, according " to the ſecond, ſomewhat more than two hundred fifty two " buſhels.

" [1] *See his* Exp. *made at Oxford; in the* Ph. Tr."

manufacturers of a commodity, as they have an opportunity of chuſing that which is moſt ſuited to their convenience; and conſequently they will have it in their power to erect their works at leſs expence, and carry them on with greater eaſe, than if they had only a ſingle plan to purſue, and a ſingle proceſs to work by.

In his fifth propoſition, the very ingenious Dr. Brownrigg recapitulates the advantages that will accrue from making bay ſalt in England, obſerving that *bay ſalt may be prepared here, by the foregoing methods, at a very moderate expence, equal in goodneſs to the beſt foreign bay ſalt, and in quantity ſufficient for the conſumption of all the Britiſh dominions**. Is not this a great encouragement for the eſtabliſh-

" buſhels. And if we divide thoſe quantities by ſix, the num-
" ber of days in which all the water is exhaled, we ſhall find
" that, according to the firſt ſuppoſition, thirty eight buſhels,
" and, according to the ſecond, ſomewhat more than forty two
" buſhels of bay ſalt may be daily prepared in dry ſummer wea-
" ther, in a work of the above dimenſions.

" The ſame calculations alſo ſhew the quantity of ſalt, which
" may be prepared from ſea-water in a ſalt marſh, where the
" pits are of the dimenſions above ſuppoſed; for in both
" caſes the ſalt pits muſt be kept conſtantly filled with a fully
" ſaturated brine. But if only half the quantity here ſup-
" poſed, viz. twenty one buſhels, or 1764 pounds of ſalt, can
" be made every dry ſummer day in a ſalt marſh of the above
" dimenſions, it is as much as is commonly made every day
" from brine in a ſaltern whoſe boiler contains eight hundred
" gallons." *Brownrigg.*

* " If, in the firſt place, we compare the French ſalt marſh
" with the Engliſh ſaltern for boiling white ſalt, we ſhall find
" the expence of making the former much leſs than that of
" making the latter; in which the expence of boiling-houſes,
" hot-houſes, furnaces, ſalt pans, &c. is very conſiderable;
" and which alſo frequently require large ſums to be laid out
" on them to keep them in repair; whereas the French marſh
" requires very little repairs. Beſides, the expence of coals or
" or other fewel is very great in the Engliſh ſaltern, which is
" all ſaved in the French bay ſalt work; and the expence of
" labour will be more in proportion to the quantity of the ſalt
" made in the Engliſh white ſalt work than in the French ſalt
" marſh. And for theſe reaſons; though the French bay ſalt

eſtabliſhment of ſuch kind of ſalt works? I own, I think it is, and that it is a very happy circumſtance, that the perſons

" is better than the Engliſh boiled ſalt, yet it can be made for " ſeven or eight ſhillings a tun, which is little more than one " third of the price for which white ſalt can be made in the " moſt commodious parts of Great Britain.

" If again we compare the French ſalt marſh with the Engliſh " marſh, as propoſed under Prop. II. we ſhall find that where the " ſituation is equally convenient, the difference of the expence in " making them will be very inconſiderable. For as the partitions " between the ſalt pits, and the trench and ſluice which ad- " mit the ſea water, and the walls between the ponds, are the " moſt expenſive parts of the work; if therefore the Engliſh " work be one fifth part more in ſurface than the French work, " it will not require above one tenth part more expence to make " it, than to make the other. And this ſmall difference in the " prime coſt of the two works, will occaſion but a very trifling " difference in the expence of making ſalt in them; eſpecially " as the works, when finiſhed, will require little repairs for " twenty or thirty years.

" The expence of the Engliſh ſalt marſh will indeed be con- " ſiderably increaſed by the additional contrivances propoſed " under the third Prop. The moſt expenſive of theſe will be " the reflectors, which I am informed by a good judge, if " made of ſtrong ſail cloth ſtretched on frames, and painted " white, and properly fixed to poſts, ſo as to cover eighteen " pits of ſixteen feet ſquare, might probably coſt 50*l.* or at " the moſt 60*l.* And ſhould all the other contrivances coſt 60*l.* " more, or even double that ſum; this additional expence " would be very quickly accounted for in the profit of the " work, as it is probable that double the quantity of ſalt might " be made with theſe contrivances, that could be made without " them. And the additional labour, which theſe contrivances " would occaſion, would make very little increaſe of expence, " as it would all be performed when no ſalt is drawn, and " conſequently when the labourers have little elſe to do.

" As to the work propoſed under Prop. IV. for making bay " ſalt from natural brine; twice as much ſalt might be pre- " pared in it in one day (according to the foregoing calcula- " tions) as is uſually made in a Cheſhire ſaltern, whoſe pan " contains eight hundred gallons; although the ſaltern would " require much more money to erect it, and to keep it in re- " pair, beſides the expence of coals; which is the heavieſt " article, coſting oftimes above two thirds of the value of all " the ſalt prepared with them.

" All

perſons who may propoſe to be candidates for the premiums to be given by the ſociety, will have ſo good a guide to conduct them in their infant undertakings.

The

" All theſe things therefore conſidered, it may with reaſon " be preſumed that bay ſalt may be made in ſeveral parts of " Great Britain, nearly as cheap as it is now made in France. " And as the French and other foreign ſalt muſt be charged " with a conſiderable freight when brought to the Britiſh mar- " ket, it is very probable that bay ſalt made in Great Britain " might be afforded cheaper there than French or any other " foreign ſalt; eſpecially as there is 1*s.* 1 $\frac{1}{3}$ *d.* paid more in " duties for every half hundred weight of foreign ſalt, than for " the ſame quantity of Britiſh ſalt conſumed in England [1]; " which ought to be conſidered as a bounty to the Britiſh ma- " nufacturer of bay ſalt. Moreover, the law now allows three " buſhels duty free, for every wey (or forty buſhels) of Bri- " tiſh ſalt carried coaſt-wiſe; which allowance will not only " make up for the waſte in carriage, but will alſo pay the ex- " pence of carrying the ſalt to market, to moſt parts of Eng- " land. The laws therefore, as they now ſtand, are extremely " favourable to the Britiſh manufacturers of bay ſalt, who, to- " gether with the public, would, in all probability, reap great " advantage by making ſalt works, ſuch as before propoſed. " And ſuch numbers of theſe works might be made at proper " places along the Britiſh coaſts, and nigh brine pits where " fuel is ſcarce, as would afford bay ſalt enough for all the " occaſions of Great Britain; and might even furniſh an article " for exportation in thoſe ſhips which are ſent from thence " empty to Denmark, Norway, and into the Baltick, for hemp,

" flax,

[1] " *By the laws as now eſtabliſhed, white ſalt, and other ſalt of* " *Britiſh manufacture conſumed in England, pays a duty of* 3s. 4d. " *per buſhel, weighing fifty ſix pounds.*

" *But bay ſalt, and other foreign ſalt there conſumed, pays a du-* " *ty of* 6s. 8d. *per buſhel, weighing eighty four pounds. So that* " *fifty ſix pounds of foreign ſalt pays* 4s. 5 $\frac{2}{3}$ d. *in duty; from which* " 3s. 4d. *being deducted, there remains* 1s. 1 $\frac{1}{3}$ d. *which is paid for* " *fifty ſix pounds of foreign ſalt more than for the ſame quantity of* " *Britiſh ſalt conſumed in England. In both caſes an allowance is* " *made for prompt payment. In Scotland the exciſe upon Britiſh ſalt,* " *as well as foreign ſalt there conſumed, is only half of that paid in* " *England.*

" *And all ſalt applied to curing ſuch fiſh as is exported to foreign* " *markets, is in both parts of the united kingdom free from duty.*"

The reaſons for eſtabliſhing works of this nature in England are very cogent; there is annually a great conſumption of this commodity in England, and Scotland, almoſt the whole of which is imported from abroad, at a very conſiderable expence to the nation. All the money which goes for the purchaſe of bay ſalt will by that means be ſaved, and the balance of trade with foreigners will be by ſo much the more in our favour. Excuſe any inaccuracies in this letter, as it was written in a great hurry, leſt it ſhould be too late to be inſerted in your next publication.

Your humble ſervant,

London, Dec. 15, 1763. AN ATTENDING MEMBER.

" flax, iron, timber, and other commodities of thoſe coun-
" tries.

" It remains now to ſhew, that bay ſalt, thus made in
" Great Britain, will anſwer all the purpoſes of foreign bay
" ſalt, and will be equally good for curing fiſh and fleſh, and
" for all other culinary uſes.

" As to the ſea ſalt, no one will call this in queſtion, ſince it
" is made from the ſame water as foreign marine bay ſalt, and
" the method propoſed for making it appears to be at leaſt as
" good as that which is practiſed by foreigners. And it hath
" already been found by experience, that bay ſalt made in
" Hampſhire is not inferior to foreign bay ſalt for the above-
" mentioned uſes. And where natural brine is ſufficiently pure,
" as at Droitwich, there is no doubt but that an excellent bay
" ſalt might be made from it at one operation, as is practiſed
" in the iſle of May, and in other hot countries. But if there
" be much calcarious earth, or other earthy impurities mixed
" with the brine, as in Cheſhire; ſuch brine will afford a bet-
" ter ſalt if it is only of a moderate ſtrength, ſo that it may re-
" main a conſiderable time in brine ponds, there to mellow,
" and to heighten into a fully ſaturated brine, and to depoſite
" its earthy impurities, which would be very prejudicial to the
" ſalt if mixed with it." *Brownrigg.*

NUM-

NUMBER LXV.

Copy of a Letter from Mr. William St. Clair, *to Mr.* Rocque, *of* Walham-Green, *reſpecting the Improvement of Land by Artificial Paſtures* *.

SIR,

I HOPE you will forgive this trouble from one who has been for many years a lover and practiſer of huſbandry; and your fame having reached me, I am curious to know, from yourſelf, if what I have heard is fact; which is, that you have forty-five or fifty acres, and that you make thirty-five pounds per acre: this is what I can have no conception of; and, if it is ſo, I am ſure you have brought improvement to the higheſt pitch of any in Britain.

If you will be ſo good as to favour me with a ſcheme of your management, it will be the higheſt obligation you can confer on me. Of late I have heard much ſpoken in praiſe of burnet graſs: I never have ſeen it; but as I hear you deal in it, I can apply to no better hand to be informed of its quality, and whether or not you think it exceeds other graſſes for hay and paſturage.

I have an incloſure of about twenty acres I propoſe to lay down with graſs ſeeds the enſuing ſpring: if I have encouragement from you, I would lay it down with burnet graſs, if I can be ſupplied with the ſeed; and I ſhould be glad to know the quantity ſhould be ſown upon the acre, and if it is ſold by the buſhel, or by weight, and the price; alſo the nature of the ſoil which ſuits it beſt. Your anſwer to this will very much oblige,

SIR,

Your moſt humble ſervant,

Edinburgh, Nov. 21, 1763. WM. SAINT CLAIR.

NUM-

* Having been favoured by Mr. Rocque with this letter, and the anſwer he wrote to it, which immediately follows; we could not defer preſenting theſe two curious pieces to our readers.

NUMBER LXVI.

Mr. Rocque's *Anſwer to the above Letter, being a Deſcription of the Culture of the Burnet and Lucern Plants, as now practiſed with great Succeſs by him.*

SIR,

I HAVE received your favour of the 21ſt of December, by which I find a ſtory loſes nothing by being handed about: 'tis true I have forty acres of land, but have but about ten in lucern. As to what they ſay of my making thirty-five pounds per acre, I will tell you how that was.

I ſold the firſt, ſecond, third and fourth mowings at a ſhilling per rod, which came to thirty-two pounds per acre: then I mowed it a fifth time, ſo ſuppoſe they computed the fifth to come to three pounds, which certainly made thirty-five pounds, which it did. But I don't approve mowing it ſo often; for it bleeds it too much, and gives too much air to the natural graſs the ground is inclined to bear.

If your ſoil is very good, you can make ſeven or eight loads per acre.

Your land muſt be deep both for lucern and burnet: you muſt trench your ground two ſpades deep, or three if it will bear it; but be very cautious of not turning up the dead ground; for, if you do, you will be ſeven years before you can bring your ground about. I have experienced the nature of dead ſoil, and it is very clear to me, the diſorder amongſt the cattle proceeds from it, when the froſt comes ſo ſtrong as to open the pores of the ground, ſo as to reach that dead ſoil, which is of ſo poiſonous a nature that it infects the graſs *.

Burnet

readers. Mr. Rocque is requeſted to accept of our thanks for his kind communication; and any future pieces, from ſo intelligent and experienced a hand, cannot but be highly acceptable to us and the public. N.

* The dead ſoil, as Mr. Rocques terms it, may be very probably fatal to paſtures and graſs lands; but what reaſons he may

Burnet is a very valuable graſs; it is always in ſap: the great property of it is, you can keep the graſs from the middle of September, till February, March, and April, which are the months other graſſes are commonly ſcarce.

You muſt feed the burnet, for if you don't, it will be ready to mow before the proper ſeaſon of making hay. It muſt be fed from February till the 1ſt of May; the ſeed will be ripe about the middle of June: you muſt threſh it then, between wet and dry, and leave part of the ſeed with the hay, which will be as good as corn and hay together, even if the ſeed is not amongſt it. The ſtalks are ſo ſolid that it can equally ſerve for hay and corn.

I actually now keep a horſe with only the burnet hay or ſtraw that has been threſhed, and every body who ſees him is aſtoniſhed to ſee how well he looks!

Burnet muſt be mowed twice, (the ſecond mowing muſt be in the middle of September) and threſhed like the firſt, which is in June.

You cultivate burnet much in the ſame manner you do lucern. Firſt get your ground in good order; if it will not bear trenching, dung it well; the fibres will get in the ſour ſoil, being drove by the top, if the top be ſtrong: I have experienced it. I dug up a root of ſaintfoin, which was nine feet ten inches long. I was aſtoniſhed to find that that root could live in that dead ſour poiſonous ſoil; for I am very certain, had I taken a buſhel of that bad ſoil,

may have for aſcribing the diſorder among the cattle to the influence of this dead ſoil, we are at a loſs to imagine. That it ſhould have this effect, is not very apparent; its being of hurt to paſtures, &c. may proceed from its being permitted to lie ſtill in an inactive ſtate, ſo as not to be permeable to the influences of the ſun, air, and froſts: whereas in land that is kept in tillage, we cannot but be of opinion, and experience warrants us in it, that turning up the under ſtratum may very often be of ſervice to correct the ſoil, and the dead earth will ſoon be meliorated by the action of the ſun, air, and froſts; to which every part of it is at different times expoſed by the frequent ſtirrings the land receives in its preparatory tillage, when it is intended for a full crop of corn. N.

and ſpread it upon a rod of ground, it would have poiſoned it.

Your ground being in good order, you may ſow it in April, May, June, July and Auguſt; it is to be ſown, broad-caſt, like the lucern; but before you ſow it, harrow and roll your ground, then ſow twelve pounds to an acre; mix no corn with it; then harrow it with a light harrow, and roll it again: about ten days after, you'll ſee your ſeed coming up with a round leaf. Keep your crop very clean the firſt year, of all things; then it will keep itſelf clean afterwards.

The difference in the cultivating theſe two graſſes is this; you ſow but twelve pounds of burnet to an acre, and mix nothing with it; but as to lucern, you muſt firſt ſow a buſhel of barley or oats, then fourteen pounds of lucern per acre: never mow it till it is in bloom, and when you do, harrow it with a heavy harrow, which will keep your lucern clean from natural graſs, help the vegetation greatly, and breed the nitre. I am,

SIR,

Your humble ſervant,

Walham-Green, Dec. 6, 1763. BARTHOL. ROCQUE.

NUMBER LXVII.

A Letter from Philip Thickneſſe, *Eſq*; *to Mr.* Robert Davis, *reſpecting an extraordinary Phenomenon obſerved on a Plant.*

SIR,

STRANGE as the following account may appear to every reader, it is nevertheleſs true; and if any of the correſpondents of the *Muſeum Ruſticum* doubt the fact, after conſidering the following relation, you may refer them to me, or any other of the gentlemen, whoſe names I have made known to you for that purpoſe.

About fourteen years ago a particular friend of mine, who had a garden near James-Street, Bedford-Row, was informed

informed by his ſervant, that a *Chryſanthimum* (a flowering plant commonly known) in the garden appeared to have very ſmall particles of quickſilver ſpread over the whole ſurface of its leaves and ſtalks! My friend (who is not apt to let the ſlighteſt information eſcape him, and by that means wants very little) examined this plant with all the attention due to ſo extraordinary a production, and was thoroughly convinced of the fact: every leaf and ſtalk had a multitude of ſmall globules of quickſilver adhering thereto, and which ſeemed to (and no doubt did) iſſue from the perſpiratory ducts of the plant.

The fact being aſcertained, my friend ſuffered ſeveral ingenious men of his acquaintance to examine the plant, and enquire into the cauſe; who were all ſatisfied of this extraordinary production, though none could account for it: and it remains a myſtery to this day.

My friend, and other perſons who examined it, frequently collected a great part of the quickſilver from ſeveral of the branches by ſtriking them, and catching the globules or ſmall drops, which inſtantly united in the hand, and left no doubt that it was pure crude quickſilver! and the next day after thus gathering it, it gave freſh proofs of its limbetick quality; for not only the ſurface would be again powdered over, but in the hollow of the leaves, and particularly in thoſe formed by the inſertion of the footſtalks, ſmall drops alſo would be formed by the conflux of the ſmall particles continually emitted!

In this ſtate it continued about three weeks or a month, till the froſt killed it, together with the reſt of its ſpecies.

My friend, knowing his ſervant to be ingenious, took every precaution to find out whether he watered the *Chryſanthimum* with any ſolution of quickſilver, or uſed any art, or whether it really was the production of chance; and he was thoroughly convinced of the latter, for had the ſervant known ſuch a ſecret, he could have repeated it another year, and thereby have raiſed a large ſum of money by expoſing ſuch a curioſity to the public.

The only tolerable reaſon, therefore, which can be aſſigned towards leading to a diſcovery is, that as my friend frequently amuſed himſelf with a variety of chemical experiments (among which there were ſome wherein quickſilver was employed in various forms) the glaſſes and crucibles uſed, together with the refuſe of it, were waſhed and thrown out near the place where this *Chryſanthemum* grew, and the grateful plant undertook ſpontaneouſly to reſtore again to its maſter, in this unheard-of manner, and in purity too, what it had received in ſome corrupt ſtate! On the other hand, my friend made many experiments on the ſame kind of plants, all which either died, or failed of the wiſhed-for effect*.

Perhaps this account may lead ſome of your readers to purſue this matter further; many great diſcoveries have been made by chance: but as this ſtory borders on the *marvellous*, you are at liberty either to print, or tell the name of,

SIR,

Your humble ſervant,

Dec. 17, 1763. PHILIP THICKNESSE.

P. S. If, as I have heard aſſerted, it be true, that men who have taken calomel in great quantities, have, with a microſcope, perceived it to iſſue through the pores of the ſkin, it cannot be more extraordinary that a plant ſhould be operated on in the ſame manner.

* If we miſtake not, we have been informed that there is a poſſibility of mixing mercury, in ſome forms, with the ſap of a plant by a kind of inoculation, *viz.* by making an inciſion in the bark, and inſerting the preparation; part of which the ſap will in its circulation, or courſe, imbibe: we deſire, however, no great dependence may be had on this, as we are not certain of the fact. O.

NUMBER LXVIII.

A Letter to Mr. Robert Davis, *on the Advantages of cultivating Lucern* *.

SIR,

THOUGH the lucern has been cultivated with great ſucceſs in ſome parts of England, and its advantages and qualities, with the method of cultivation, very fully ſet forth in Miller's Dictionary, yet as it is there ſet down by the name of Medica, and in a book that is not ſo likely to fall into the hands of the many who will ſeek inſtruction from the *Muſeum Ruſticum*, I think it a very proper ſubject to be mentioned therein, in order to encourage thoſe, who have a mind to be ſufficiently informed of its wonderful encreaſe, to loſe no time in propagating a graſs, from which ſo much benefit muſt ariſe †.

In

* This letter was written by the ſame gentleman, who favoured the *Muſeum Ruſticum* with the piece marked Numb. III. in which we muſt requeſt our readers to correct the following Errata, viz. page 16, line 5, for *trees only as*, read, *trees only that*; and page 17, line 15, for, *year the animalculæ is*, read, *year the egg of the animalcula is*.

† The gentleman, who favours our work with this letter, refers our readers to Miller's Gardener's Dictionary for information reſpecting the manner of cultivating it. As this work of Mr. Miller's is of a high price, we ſhall, for the benefit of ſuch as have no opportunity to ſee it, give the ingenious author's ſentiments on the ſubject. Under the title Medica, he ſays, " The method I would direct for the ſowing theſe ſeeds (of lucern,) is as follows: After having well ploughed, and harrowed the land very fine, you ſhould make a drill quite acroſs the ground, almoſt half an inch deep, into which the ſeeds ſhould be ſcattered very thin; then cover them over a quarter of an inch think, or ſomewhat more, with the earth; then proceed to make another drill, about a foot and a half from the former, ſowing the ſeeds therein in the ſame manner as before; and ſo proceed through the whole ſpot of ground, allowing the ſame diſtance between row and row, and ſcatter the ſeeds very thin in the drills. In this manner an acre of land will require about ſix pounds of ſeeds; for when it is ſown thicker, if the ſeed

grows

In April laſt I cleared a ſmall ſpot of ground, in order to try the experiment; and in the begining of October I cut

grows well, the plants will be ſo cloſe as to ſpoil each other in a year or two, the heads of them growing to a conſiderable ſize, as will alſo the roots, provided they have room. I have meaſured the crown of one root, which was in my poſſeſſion, eighteen inches diameter, from which I cut near four hundred ſhoots at one time, which is an extraordinary encreaſe, and this upon a poor dry gravelly ſoil, which had not been dunged for many years; but the root was at leaſt ten years old; ſo that if this crop be well cultivated, it will continue many years, and be equally good as when it was firſt ſown; for the roots generally run very deep in the ground, provided the ſoil be dry; and although they ſhould meet a hard gravel a foot below the ſurface, yet their roots will penetrate it, and make their way downward, as I have experienced, having taken up ſome of them, which were above a yard in length, and had run above two feet into a rock of gravel, which was ſo hard as not to be looſened, without mattocks and crows of iron, and that with much difficulty. The reaſon for directing this ſeed to be ſown in rows, is, that the plants may have room to grow, and for the better ſtirring the ground between them, to deſtroy the weeds, and encourage the growth of the plants; which may be very eaſily effected with a Dutch hoe, juſt after the cutting the crop each time, which will cauſe the plants to ſhoot again in a very little time, and be much ſtronger than in ſuch places, where the ground cannot be ſtirred; but when the plants firſt come up, the ground between ſhould be hoed with a common hoe; and if in doing of this you cut up the plants, where they are too thick, it will cauſe the remaining to be much ſtronger. This hoeing ſhould be repeated two or three times, while the plants are young, according as the weeds are produced, obſerving always to do it in dry weather, that the weeds may the better be deſtroyed. With this management the plants will grow to the height of two feet and more, by the beginning of Auguſt, (it having been ſown in April,) when the flowers will begin to appear; at which time it ſhould be cut, obſerving to do it in a dry ſeaſon, if it is to be made hay, and keep it often turned, that it may ſoon dry, and be carried off the ground; for if it lie long upon the roots, it will prevent the ſhooting again. After the crop is taken off, you ſhould ſtir the ground between the rows with a hoe, to kill the weeds, and looſen the ſurface, which will cauſe the plants to ſhoot again in a ſhort time, ſo that by the beginning of September there will be ſhoots four or five inches high, when you may turn in ſheep upon it, to feed it down; for it will not be fit to

cut

cut again the ſame ſeaſon; *(our correſpondent cut a ſecond crop in the beginning of October)* nor ſhould the ſhoots be ſuffered to remain on the plants, which would decay when the froſty weather comes on, and fall down upon the crown of the roots, and prevent their ſhooting early the ſucceeding ſpring. So that the beſt way is to feed it until November, when it will have done ſhooting for that ſeaſon; but it ſhould not be fed by large cattle the firſt year, becauſe the roots being young would be in danger of being deſtroyed, either by the trampling upon them, or their pulling them out of the ground; but ſheep will be of ſervice to the roots by dunging the ground, provided they do not eat it too cloſe, ſo as to endanger the crown of the roots. The beginning of February, the ground between the roots ſhould be again ſtirred with the hoe, to encourage them to ſhoot again; but in doing of this you ſhould be careful not to injure the crown of the roots, upon which the buds are at that time very turgid and ready to puſh. With this management, if the ſoil be warm, by the middle of March the ſhoots will be five or ſix inches high, when, if you are in want of fodder, you may feed it down till a week in April; after which it ſhould be ſuffered to grow for a crop, which will be fit to cut the beginning of June, when you ſhould obſerve to get it off the ground as ſoon as poſſible, and ſtir the ground with a Dutch hoe, which will forward the plants ſhooting again, ſo that by the middle or latter end of July, there will be another crop fit to cut, which muſt be managed as before; after which it ſhould be fed down again in autumn; and as the roots, by this time, will have taken deep hold in the ground, there will be little danger of hurting them, if you ſhould turn in larger cattle; but you muſt always obſerve not to ſuffer them to remain; after the roots have done ſhooting, leſt they ſhould eat down the crown of the roots below the buds, which would conſiderably damage, if not deſtroy them. In this manner you may continue conſtantly to have two crops to cut, and two feedings upon this plant; and in good ſeaſons there may be three crops cut, and two feedings, which will be a great improvement, eſpecially as this plant will grow upon dry barren ſoils, where graſs will come to little, and be of great uſe in dry ſummers, when graſs is often burnt up. And as it is an early plant in the ſpring, ſo it will be of great ſervice, when fodder falls ſhort at that ſeaſon, when it will be fit to feed at leaſt a month before graſs or clover; for I have had this plant eight inches high by the tenth of March, old ſtyle, at which time the graſs in the ſame place has ſcarcely been one inch high." The above is the method recommended by Mr. Miller for the cultivating of lucern: for our parts, we ſhould rather incline to prefer that practiſed by Mr. Rocque, who ſows it in the broad-caſt, fourteen pounds to an acre, and keeps his crop clear from natural graſs and weeds, by dragging over it a ſtrong heavy harrow, which, though it ſhould

cut a ſecond crop *; and I have all the reaſon imaginable to believe, from what I have already perceived, that an acre of lucern will produce more feed, and be of more ſervice to a farmer, than four acres of meadow land.

The late Admiral Vernon had, behind his ſtudy window, a ſmall ſpot of this lucern; and he, as I am well informed, uſed frequently to point out to it, and tell his tenants and neighbouring farmers, that *that* ſpot of ground maintained his two coach-horſes †! but the thing was new, and the generality of farmers do not chuſe to employ their land in cultivation of *outlandiſh grain*.

In

ſhould ſplit the crown of ſome of the roots, would do them no material injury (ſee page 298.) We would recommend it however to the ingenious, to give the two methods a fair trial, and communicate to us the reſult of their experiments: perhaps it might anſwer very well to the farmer, cultivated either way; and in fact our principal reaſon for preferring Mr. Rocque's method, is its approaching neareſt to the common huſbandry, and therefore more likely to be ſoon brought into general practice. N.

* Mr. Miller ſeems to think it will not be fit to cut a ſecond time the firſt year. Perhaps this gentleman's land was better than that on which Mr. Miller made his experiments: the ſeaſon might alſo be more favourable. See the laſt note.

† Mr. Miller, mentioning the great encreaſe of this plant, has the following words. "I have been aſſured by perſons of un-
"doubted credit, who have cultivated this plant in England,
"that three acres of it have fed ten cart-horſes, from the end of
"April to the beginning of October, without any other food,
"though they have been conſtantly worked. Indeed, the beſt
"uſe, which can be made of this graſs, is to cut it, and
"give it green to the cattle: where this hath been daily prac-
"tiſed, I have obſerved that by the time the field has been
"cut over, that part which was the firſt cut, hath been ready
"to cut again, ſo that there has been a conſtant ſupply in
"the ſame field, from the middle of April till the end of
"October; when the ſeaſon has continued long mild, and
"when the ſummers have proved ſhowery, I have known ſix
"crops cut in one ſeaſon; but in the dryeſt ſeaſons there will be
"always three. When the plant begins to flower, it ſhould then
"be cut, for if it ſtands longer, the ſtalks will grow hard, and
"the under leaves will decay, ſo that the cattle will not
"greedily devour it. Where there is a quantity of this cul-
"tivated, ſome of it ſhould be cut before the flowers appear;
"otherwiſe there will be too much to cut within a proper
"time."

In ſhort, they do not, nor will try, what they think doubtful experiments; but if every gentleman, who has an acre of land to ſpare, would employ it in the cultivation of this graſs, (a graſs that is both hay and corn,) and by that means convince his tenants and neighbours of its utility, neither he, or they, would have any cauſe to repent it. And for their full inſtruction for that purpoſe, I will refer them to Miller, this being meant only as an advertiſement of a ſeed, though well known, ſo little propagated in a climate that it never fails to proſper in, if rightly managed, and when once got out of the ground, will remain without further trouble for many years *. I am,

SIR,

Yours, &c.

Felixtow Cottage, Nov. 30, 1763.

NUMBER LXIX.

A Letter to the Editors, recommending the Planting of Vines on Caſtle Walls, where they will bear fine Fruit.

GENTLEMEN,

IF thoſe gentlemen who have old caſtles or ruins on their eſtates, would plant vines on the tops, where they can find breaks ſufficient to put in mould, and turn the vine branches over, and cultivate their growth in this inverted ſtate, they will have finer fruit than any which grow in the uſual way.

* We muſt not omit mentioning the hardy nature of this plant. The writer quoted in the preceeding notes ſays that in the very cold winter, 1728-9, he had ſome roots of this plant, which were dug up in October, and laid upon the ground in the open air till the beginning of March, when being planted again they ſhot out very vigorouſly ſoon after; nay, even while they lay upon the ground they ſtruck out fibres from the under ſide of the roots, and had begun to ſhoot green from the crown. But the ſame writer obſerves, that wet will deſtroy them, for having ſown ſome ſeed on a moiſt ſpot of ground for a trial, they came up very well, and flouriſhed exceedingly during the ſummer; but the winters rains rotted the roots at bottom, and killed moſt of them before ſpring.

I know a clergyman, who has planted ſome on the church tower; and by weaving five or ſix bunches of grapes together, when they firſt began to form, they have appeared as one bunch when ripe, and as ſuperior in flavour as in quantity, owing to the drineſs of the ſoil wherein the vine grew.

I am, GENTLEMEN,

Yours, &c.

Epſom, Dec. 18, 1763. A. B.

NUMBER LXX.

Copy of a Letter to Mr. Rocque*, *of* Walham-Green, *from Mr.* Corbett, *of* Salop, *reſpecting the Culture of the Burnet and Timothy Graſs.*

SIR,

HEARING ſo great a character of it, I muſt deſire you to ſend me down enough of your burnet ſeed to ſow three acres of ground, which I ſuppoſe will be ſix and thirty pounds; viz. twelve pounds to an acre.

I intend to ſow it in March, or April next, as you ſhall adviſe, and ſhall ſave ſeed from it the firſt year, and mow it: I ſuppoſe the ſeed will be ripe, and fit to mow in June: I purpoſe grazing it afterwards till September, but how long it muſt be after the burnet has been mowed and taken out of the field, before I turn in cattle or ſheep, I muſt learn from you.

My intention is to let the burnet grow from September to the middle of January, or the beginning of February, then to turn in cattle or ſheep (I ſuppoſe ſheep may be turned in ſooner

* We cannot omit this opportunity of returning thanks to Mr. Rocque, in the name of the public, as well as ourſelves, for his great regard to the welfare of this his adopted country, of which his conſtant and unwearied endeavours to improve the ſtate of agriculture, and his willingneſs to communicate to us what may be worthy of notice, are undoubted teſtimonies. N. R. O.

ſooner than large cattle) and let them ſtay in till the latter end, or the middle of May; then let the burnet graſs grow till it is fit to mow, which I ſuppoſe will be in the latter end of June.

What I muſt do afterwards, I deſire to know of you; whether it may be mowed again, and when?

As this is a new thing in our country, I ſhould be glad ſo to manage as to have it in perfection; this makes me deſire of you ſuch particular directions: be pleaſed, therefore, to let me know wherein I am right in what I propoſe, and when wrong?

How long will burnet-ſeed keep good, and fit for ſowing? In a book that I take in, called *Muſeum Ruſticum et Commerciale*, N°. III. for November, there is a letter from a gentleman, marked Numb. LII, page 230. which acquaints the public that he has been at your houſe; that you have cultivated burnet three years; gives a great character of your ſucceſs; ſays he ſaw your timothy-graſs ſeed; ſays it is only fit for wet, or bog lands, growing from every joint, like the ſcutch, or couch graſs, ſo as if it was ſowed in up-land, and if you was diſpoſed to plough it, you could not get the timothy-graſs out of it.

But I requeſt an account from you of its properties, as I ſhall have a greater regard to your account than the book: if it is only fit for wet grounds, I will have ſome down to try.

Pray let me know what quantity of timothy-graſs ſeed will do to ſow an acre, and what the price of it is; and I will then ſend you my orders for ſome of it.

The book I mention takes notice of a black-rooted burnet, that grows in Germany: do you know it?

Another book I have, recommends a wild madder that grows in Wales and England on barren grounds, called *Squinaneg-wort*; formerly uſed by the apothecaries, for the cure of a ſore throat. He recommends it to be cultivated for the uſe of dying of cloth. Can you procure me any of the roots, to be ſent me down in the ſpring, to be planted?

The first book I mentioned says, that you are trying several sorts of grasses. If you can spare me any of the seed, should be glad to try them myself.

Salop, Dec. 7, 1763. Yours, &c.

Direct to me thus, EDWARD CORBETT.

To Mr. Edward Corbett, *at* Salop.

P. S. If a gentleman, after he has had your burnet-seed upon his ground for five or six years, or less time, has a mind to plough it, how must he manage it then? I wrote to you some time ago about the *anemonies* and *ranunculus's* I sent to you for, but have been favoured with no answer. I desire you would give me an answer to this as soon as possible, that I may know if I can depend on you for the burnet and timothy seeds.

NUMBER LXXI.

Mr. Rocque's *Answer to the above Letter, describing the Culture of the Burnet, Timothy Grass, &c.*

SIR,

I Have received yours, and shall, according to your order, send you thirty-six pounds of burnet seed this day se'nnight, with a pound of *anemonies* and a hundred of *ranunculus's*. You rate them so low, that I cannot send you my best kinds.

Your three acres of burnet must not be sown till April, and if your ground is not in extraordinary good order, defer sowing it till May; and do not forget to keep it very clean the first year, as I have observed before*.

You may save seed the first year; but the first year's sowing will not be ripe enough in June.

You must not mow it till you find the seed loosen from the pod, which will be about the middle of July.

If sowed in May, you must not graze it as you propose, because young grass bleeds too much; but leave your grass till

* See Mr. Rocque's Letter to Mr. St. Clair, page 296.

till February or March, for the firſt year; then, if you have a mild winter, you will find you will have an aſtoniſhing crop in March, as rank as clover in May: you may then feed it till the beginning of May, at which time take your cattle off, and leave your crop till the middle of June, when it will be ready to mow, and the ſeed will be ripe. In a letter I have already wrote * on this ſubject, my directions were, to threſh the burnet between wet and dry; but you may threſh your ſeed clean, becauſe ſince the time I wrote that letter † I find that the burnet is of ſuch a ſtrong nature, that when the horſes feed upon it, their fleſh is ſo firm, that the higheſt-kept horſes are not to be compared to thoſe fed upon burnet, for firmneſs of fleſh.

The chaff likewiſe, it is my belief, is as good as pollard to a horſe. I feed my horſe with the chaff, and add but one eighth part of pollard, and think he thrives very well upon it.

As to the time of feeding, you need make no diſtinction about it. The ſheep, and other cattle, may be turned in promiſcuouſly at the ſame time; but never feed them on the burnet while you have other graſs, becauſe no other graſs will keep but the burnet.

I have ſowed burnet ſeed two years old, which grew very well; but have not yet experience enough to tell you how long it will keep fit for ſowing.

It is my opinion, when we feed our cattle upon it, we ſhall have firmer meat than ever we had.

As to timothy graſs, it grows prodigiouſly quick. I have ſowed it, for the firſt time, in September laſt; ſo that I know very little of it, except by report; but will rely only upon my own experience, which I ſhall make of it: it is now a very ſtrong turf, that appears to be ten years old.

Lord Robert Manners brought me one root from *Lincolnſhire*, that grew on a quarry; the ſtem of the graſs was about two feet and a half high; the ſeed was ripe, and larger than that brought from Virginia.

* See the Letter referred to in the laſt note.

† See page 297, *antea*.

I planted the root in October laſt, and it has branched out above two inches long. I hope to be able to give you a better account of it, if we live till the latter end of next year; and ſhall likewiſe be able to give you a deſcription of the *ſheep's-fiſcue* graſs-ſeed.

As to the black-rooted burnet*, which grows in Germany, I believe I have ſome of the ſeed which *Lord Robert Manners* brought me out of *Lincolnſhire*. He tells me it grows to a very great height; that is all I know of it.

The wild madder is a root they uſe for the ſcarlet dye; but here we plant it in the beſt lands, becauſe the root of it pays very well.

I have been told, that a good acre is worth an hundred pounds the third year: it may be mowed once a year for hay at the decline of the ſap: it might be mowed twice, but (as I ſaid already) it is dangerous to bleed the root.

The ground where you plant it muſt be very deep, and eaſy to work, for the better taking up the roots, which will run ſeven or eight feet deep in the earth.

It grows in the ſame nature as the aſparagus root. If you chuſe to have ſome plants, I can ſupply you with as many winter plants as you pleaſe; becauſe mine are three years old, and I ſhall take them up in the ſpring.

To return to the burnet; if you have a mind to plough it after five or ſix years, or leſs time, plough it as you would clover; and the crown of the root will ſerve to manure the ground, which will be freſh for any other crop. We remark, every plant draws a different ſalt.

I remain, SIR,

Yours to command,

Dec. 24, 1763. B. ROCQUE.

* This is, perhaps, the *ſanguiſorba ſpicis longiſſimis*; otherwiſe called, *pimpinella maxima canadenſis*. See Miller's Dictionary.

NUMBER LXXII.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

I SEND you herewith the copy of a letter I ſent ſome time ago to the ſecretary of the Society for the encouragement of Arts, Manufactures, and Commerce: I ſhould take it as a very particular favour if you would give it a place in your uſeful collection, as I am of opinion it would be of ſervice to the community to have the knowledge of its ſubject as much circulated as poſſible. Believe me,

GENTLEMEN,

Caernarvon, With great reſpect,
Dec. 2, 1763. Your moſt obedient ſervant, *&c.*

Copy of a Letter to Dr. Templeman, *Secretary to the Society of Arts, on the Culture of Furz for Winter Fodder.*

SIR,

THOUGH my reſidence is for the moſt part at a great diſtance from the metropolis in Wales, yet I thought it ſome years ago my duty to become a member of your ſociety; I love my country, and would wiſh to encourage every thing that can tend to its well doing.

Agriculture has received much encouragement in the ſociety: I imagine, therefore, it cannot be *mal a-propos* to mention a plant which is now in many parts a troubleſome weed, but which may be cultivated in encloſures on ſome poor lands to advantage.

The great aim of the preſent farmers ſeems to be the procuring plenty of winter-fodder at a cheap rate. To anſwer this intention they ſhould ſome of them practiſe a method much in uſe in this principality, and which I would willingly

willingly recommend to the notice of the gentlemen appointed to ſettle the premiums for the enſuing year *.

As we do not in many diſtricts ſow any great quantity of corn, ſtraw for fodder is a ſcarce commodity: beſides our lands being poor, what ſtraw there is, muſt of courſe be ſhort.

To remedy this evil we ſow furz, otherwiſe called gorſe or whins: this we cut at three years growth, and after paſſing it though a machine which cuts and bruiſes it at the ſame time, we give it to our horſes, which feed on it and thrive to admiration.

I have had much experience of the benefit of this food: it is healthful, ſtrengthening, and gives them ſpirits; they are fond of it and eat it without inconvenience, the ſpines which would prick their mouths being broke by the machine. I have kept nine or ten horſes for ſome years paſt, in winter time, chiefly on this food.

We cultivate it in manner following. Almoſt any ſoil will do for it, but it ſhould not be too wet.—After plowing the land, it is ſown with a broad caſt: one pound of ſeed is enough for an acre, though ſome ſow more. The farmer ſows a certain number of acres, in proportion to the number of cattle he has to feed †.

The ſecond and third years he ſows the ſame quantity of land with the ſame crop.

The third year, as I mentioned above, the furz is fit to cut from the firſt ſowing, and the others in due courſe follow.

Some poor huſbandmen, who ſow but little, ſend every morning, during the winter ſeaſon, two men into the furz-field

* We cannot but approve of every attempt towards encreaſing the number of our artificial paſtures, which indeed cannot be too numerous: we may perhaps ſoon have ſome adapted to every ſoil and ſituation. O.

† Mr. Miller, in treating of the furz plant, ſeems to think it of no other uſe but for burning; yet he acknowledges it will grow to profit on poor land which will neither produce corn nor good graſs; and this is on many occaſions a ſufficient inducement towards cultivating it as a winter fodder under certain circumſtances. A.

field with a ſcythe, and a large baſket ſlung on a pole: theſe mow it, tread it into the baſket, and bringing it home, they prepare, with the machine above mentioned, the day's allowance of food for the beaſts: the baſket, in general, holds enough to ſerve for the day.

This practice of ſowing furz might certainly be followed with profit in many parts of England: I know, myſelf, ſeveral places where there are large tracts of poor land fit for this purpoſe, and winter fodder is exceeding ſcarce; but the misfortune is, this method is not generally known, and wants the ſanction of authority to recommend it.

It could not ſurely be amiſs for the ſociety to publiſh a premium to be given to the perſon who ſhould ſow the greateſt number of acres with this plant, to be uſed as fodder; excluding Wales, where the cuſtom is common, and ſuffering none to claim the premium who have ever before ſown it for this uſe. However, as I mean only to give a hint to the ſociety in this letter, there is no neceſſity for enlarging on this particular, of properly giving the premium I propoſe: I ſhall leave that to thoſe gentlemen who, being conſtant attendants on the meetings of the ſociety, and committees, muſt be much better judges than I can pretend to be in the affair.

I could wiſh every gentleman would communicate to the ſociety the different practices in huſbandry, as uſed in his neighbourhood. This ſociety would then be a center of intelligence to the whole kingdom, and any man, who choſe to ſtudy agriculture from experience, might reſort for that purpoſe to their valuable repoſitory of letters.

I ſhall be glad of every opportunity of doing ſervice to the ſociety, and in conſequence, to the public; on which account you may, perhaps, now and then hear from me on ſuch ſubjects as I may, in future, think to be ſufficiently intereſting to engage your attention, which muſt be very importantly employed. I am,

SIR,

Your very humble ſervant,

Caernarvon, Nov. 20, 1763. A MEMBER, &c.

NUMBER LXXIII.

A Letter to the Editors, from Mr. John Irwin, *on the different Admeaſurements of Land, in* Ireland, England, *and* France.

GENTLEMEN,

I AM much obliged to your correſpondent D. C. for rectifying my overſight with regard to the proportion betwen the Engliſh and Iriſh acre, (in the piece marked N°. II. of your work) or rather of reminding me to ſet myſelf right.

If he reads the paragraph again, he may perceive it to amount to no more than a defect (cauſed through hurry) in the manner of expreſſion, which poſſibly might have often happened to himſelf, for *humanum eſt errare.*

I am ſorry he did not favour us with his name, (unleſs it would diffuſe a bluſh over his modeſty) that we might know to whom we are indebted for this correction; as alſo the proportion between the two acres in ſquare feet, which would be of more general uſe to the landholder.

However, ſince this gentleman hath reminded me of the neglect in my former letter, I will endeavour to amend it in this, and in ſuch an extenſive manner as I hope will prove both uſeful and inſtructing, eſpecially to the lower and leſs-informed farmer.

Proportion between the Engliſh and Iriſh acre ſtated.

The Engliſh acre contains

160 ſquare poles, which at 16½ feet, long meaſure, each pole, make 43560 ſquare feet.

160 poles, at 5½ yards each, long meaſure, make 4840 ſquare yards in the acre.

The Iriſh acre contains

160 ſquare poles, or perches, which at 21 feet, long meaſure each, make 70560 ſquare feet.

160

160 D°, which at 7 yards, long meaſure each, make 7840 ſquare yards.

The Iriſh acre exceeds the Engliſh in ſquare feet 27000

——— ——— ——— ——— in ſquare yards 3000

There is alſo another Engliſh ſtatute perch or pole, uſed in the admeaſurement of woods, which is 18 feet, or 6 yards, long meaſure.

Beſides theſe ſtatute meaſures, there are in England what may be called *cuſtomary perches*, differing one from the other in length in various counties.

In *Staffordſhire* the cuſtomary perch is twenty-four feet—In the foreſt of *Sherwood* twenty one; the foot there being eighteen inches; the meaſure whereof is marked in the chancel wall of *Edwynſton*, and in the church of *St. Mary* in *Nottingham*.

In *Herefordſhire* the perch of walling is ſixteen feet and a half; a perch of ditching twenty-one feet, *&c.*—The geometrical perch is ten feet, being the ſame meaſure that was in uſe among the old Romans.

As I have proceeded thus far in giving the different admeaſurements of land in England, and as it is now become ſo much the faſhion to read French books on the ſubject of huſbandry, I ſhall, from a very eminent writer of that nation, give ſome account of the French *arpent* or acre, as varying in ſize in different provinces.

The ſmall *arpent* in uſe about Paris contains one hundred ſquare perches, each perch being eighteen feet long; ſo that the *arpent* conſiſts of 32,400 royal feet.

The middling *arpent* in uſe in *L'Iſle de France*, contains alſo one hundred ſquare perches, but this perch is twenty royal feet long. The *arpent* therefore here conſiſts of 40,000 royal feet.

The great *arpent*, as fixed by the *ordonnance* made for the due government of the king's royalties on the waters, and in his foreſts, and on that account called the *royal meaſure*, contains in like manner one hundred perches; but this perch is ſtill longer than that laſt mentioned, being twenty-two royal feet; ſo that the *arpent*, royal meaſure, contains 48,400 feet.

The *acre*, properly ſo called in a part of Normandy, contains one hundred and ſixty ſquare perches, the perch the ſame length as the laſt; ſo that this Norman acre conſiſts of 77,440 ſquare feet.

The *journal* * in uſe about Bourdeaux, containing 888 ſquare *toiſes*, or French fathoms, is divided into three *pougnerées*. The pougnerée contains ſeventy-two *eſcas*, 10,656 ſquare royal feet, or 296 ſquare *toiſes*, or fathoms. The *eſca* is twelve feet two inches long.

The *journal* uſed about *St. Dizier* in *Champagne*, contains eighty ſquare perches, each perch twenty-two royal feet long.

The *ſepterée* of *Clermont-Ferrand*, contains 800 ſquare *toiſes* or fathoms. The *journal* of Lorrain conſiſts of 250 ſquare *toiſes*, each *toiſe* being ten Lorrain feet long, equal to eight feet nine inches and ten lines, royal Paris meaſure.

As in the above account mention is frequently made of the Paris royal foot, it may not be amiſs to mention the proportion it bears to the Engliſh foot, which being divided into 1000 parts, the Paris royal foot will be 1068, and the Lorrain foot 958 of thoſe parts; or the Paris foot being ſuppoſed to contain 1440 parts, the Engliſh will be 1350, the Paris royal foot exceeding the Engliſh by about ſeven lines and a half. The French, like us, divide their foot into twelve inches, and the inch into twelve lines. The geometrical foot contains ten digits, and the digit ten lines, &c.

I am, GENTLEMEN,

Your very humble ſervant,

London, Dec. 4. 1763. JOHN IRWIN.

P. S. We muſt not omit to obſerve, that the perch, pole or rod of land, is in ſome places called a *Lug*. In many places among the old farmers, the acre of land is eſtimated by the proportion of ſeed uſed for ſowing it; by which means of courſe it varies according to the fertility or poverty of the

* The *journal* is ſo called from the French word *jour*, a day, and ſignifies a day's work, or ſuch a quantity of land, as a yoke of oxen may be ſuppoſed to plow in a day. N.

the ſoil. The Welſh acre uſually contains two Engliſh acres. An *acreme* of land is ten acres. The fourth part of an acre or a rood of ground is, in ſome parts of England, called a *farding-land*, or *farundale* of land.

NUMBER LXXIV.

Queſtions concerning the Anil, or Indigo Plant, and the Cotton Shrub; with a Letter to the Editors.

GENTLEMEN,

IN Number XI. and XXVII. of your *Muſeum Ruſticum*, there are many very uſeful queſtions, ſome of which I have the pleaſure to ſee already anſwered.

As you intend your inſtructions for every part of his majeſty's dominions, give me leave to aſk you a few queſtions; which (if you think the anſwers may be of uſe to thoſe who intend to ſettle in any of our new acquiſitions in America) be ſo kind as to publiſh, for the peruſal of your ingenious correſpondents. I am, with the greateſt eſteem,

GENTLEMEN,

Your moſt obedient humble ſervant,

London, Dec. 17, 1763. AMERICUS.

For the Editors of the Muſeum Ruſticum,
to the Care of Mr. Newbery, *Bookſeller*,
in St. Paul's Church-Yard.

What climate and ſoil is moſt proper for producing the anil (of which the indigo is made) and the cotton ſhrub; and how are they propagated?

What are the proper ſeaſons for planting and cutting them?

What is the proceſs of making the indigo from the plant*?

* We preſume our correſpondent has already ſeen what Mr. Miller has written on this ſubject, and wiſhes to know the culture of theſe plants from ſome perſon who has, by experience, enabled himſelf to lay down the beſt methods now practiſed in Carolina, Georgia, &c.

NUMBER LXXV.

A Letter to the Editors, recommending the Culture of the Caltha, *or Marſh Marigold, as a Winter Paſture for Cattle.*

GENTLEMEN,

I Find that the lovers of agriculture are endeavouring to bring about a reformation in our meadows, which have, I own, for ages, been ſtrangely over-run with a mixture of uſeful and noxious plants.

It is a great doubt with me, whether moſt of the diſorders incident to cattle, may not be with great juſtice aſcribed to this want of nicety in our meadow-huſbandry.

Our climate is naturally favourable to the growth of graſs: to this do we implicitly truſt, without reflecting, that many noxious and unwholeſome, not to ſay poiſonous herbs, are by theſe means permitted to aſſociate themſelves with the innocent and ſalutary herbage.

There is certainly no other way of remedying this than by beſtowing ſome part of our attention on the culture of the good graſſes; by ſaving their ſeeds diſtinctly, and ſowing them ſeparately.

This has been already done, by many ſorts of artificial paſture; lucern has been cultivated to great advantage, ſaintfoin is well known to be of great ſervice in particular ſoils, and clover is almoſt univerſally propagated in England.

Of late ſome experiments have been tried in cultivating burnet, as a paſture, which is a very hardy and wholeſome plant, and ſucceeds, as I am informed, extremely well; nay, I can in ſome ſort aſſert, that it is worth cultivating, as I have this ſummer ſeen it growing, and in a thriving ſtate, on an indifferent ſoil.

We owe the idea of cultivating burnet for this uſe to my worthy friend Mr. Wyche, than whom no man can have a greater ſhare of public ſpirit.

My

My intention of writing you this letter is, to point out to the public in general, and the ſociety in particular, an object worthy their attention; a plant which may be cultivated as a winter paſture for cattle; which is very hardy, preſerves its verdure during the winter; and cattle are very fond of it: it is the *caltha*, or marſh-marigold. This plant is perennial, and grows naturally in England in low meadows.

I can the more readily recommend this plant to notice, as it has been tried in France, and found to anſwer very well.

It would, perhaps, be worth while for the ſociety to offer a premium to encourage its culture next year. The ſeeds might eaſily be ſaved, and if they were ſown the latter end of the ſummer, the leaves would be proper to uſe as fodder in the winter ſeaſon.

Monſieur du Hamel, to whom the French nation is ſo much obliged, recommends the caltha to be uſed in this intention; and why ſhould not we hope for the ſame ſucceſs in our trials to cultivate it, as the French have had in the experiments they have already made? You will take this ſhort hint, I hope, in good part; my meaning is good: being fond of every thing that has any relation to huſbandry, I could not, on this occaſion, refrain writing to you; imagining, if I may judge by the propoſal, that your work will be extenſively uſeful. I am,

GENTLEMEN,

Your moſt obedient ſervant,

London, Aug. 15, 1763. AN INTENDED READER.

NUMBER LXXVI.

A Letter to the Editors, on the Benefit of a deep crumbly Loam for Fruit Trees.

GENTLEMEN,

MANY aſſert that the earth which lies under the ſurface, is not fit for the purpoſes of vegetation, ll it has been ſeveral years expoſed to the influence of

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the froſt, air, ſun, &c. but, I am of opinion, this is not confirmed by experience. I know that a deep crumbly loam is a fine ſoil for fruit trees; and I alſo know, that if it is laid in ridges during one winter and a ſummer, any ſoil, of the nature above deſcribed, will nouriſh fruit-trees, though it ſhould have been turned up from ſix feet deep in the ground.

In fact, there is not, I have reaſon to believe, ſo much danger in this *barren earth*, as ſome affect to call it, as may be imagined: the vegetative powers may, perhaps, be a little more locked up, than in that earth which has undergone a fermentation from the moiſt nitrous air; but in one year, with proper ſtirrings, it will certainly be fit for all the purpoſes of vegetation; as I have, myſelf, more than once experienced.

Yours, &c.

Dec. 24, 1763. A HUSBANDMAN.

Muſeum Ruſticum, &c.

For JANUARY, 1764.

NUMBER LXXVII.

A Letter to the Editors, from a correſponding Member of the Society of Arts, on the Culture of the Sugar-Cane, &c. in the Weſt-India *Iſlands; and recommending the Planting them in the Southern Parts of the* American *Continent.*

GENTLEMEN,

FROM what I have ſeen of your work I cannot but greatly approve of it, and from the knowledge I have of the Engliſh dominions in America I cannot in the leaſt doubt but that the *Muſeum Ruſticum* will be found highly uſeful even in thoſe remote parts of the world: with this view I now write, being willing to communicate that knowledge I have acquired, in various peregrinations in the Weſt-Indies, to the Engliſh planters who are, and will be, ſettled to the ſouth of Georgia.

I have not been very long arrived from the North-American continent, and was laſt year in Georgia, from whence I made an excurſion or two to the ſouthward, prompted by my curioſity to ſee part of Florida and Louiſiana.

From the obſervations I made in this tour, I am induced to conclude that ſugar-canes might to very great advantage be planted in many parts of the territory eaſt of the river Miſſiſippi, ceded to England by the late treaty*.

The ſoil is in moſt parts deep, fine, and freſh; the climate is quite warm enough, and the country is not ſo ſubject to hurricanes as almoſt all our iſlands are.

Another great reaſon which ſhould induce the Engliſh to encourage the planting the ſugar-cane in our new acquiſitions in North-America is, that wood is very plentiful there; an article ſo very eſſential in the boiling-houſes, that ſugar can by no means be made without a large quantity of it at hand; for when fuel is ſcarce, or dear, the ſugar produced from a piece of canes will ſometimes be of leſs value than will defray the expences of making it. This is a thing well known among the planters; and for this reaſon, at the firſt ſettling a ſugar-work, as much care as poſſible is taken, not only againſt any preſent, but even any future want of this very uſeful and neceſſary article of fuel †.

This conſideration induces me, I ſay, to imagine that the ſugar-cane might to more advantage be raiſed in North-America than in our Weſt-India iſlands; for in theſe latter the madneſs of clearing has been carried to ſuch a height, that

* We agree with our correſpondent in this opinion, and hope the planting of canes will be encouraged in the new ſettlements, as it cannot but be a means of reducing the price of ſugar, which is by cuſtom become almoſt a neceſſary of life. A.

† With proper care in the preſervation of the fire-wood, which is now very plentiful on the continent of North-America, we may perhaps be enabled, in the article of ſugar, not only to ſupply our home-conſumption at a reaſonable rate, but alſo to underſell our jealous neighbours and rivals the French at foreign markets; which at preſent is not the caſe, owing to the dearneſs of negroes for labour, and of firing in our Weſt-India iſlands: and the price of ſugar is not a little encreaſed, by its requiring ſo large a ſum of money to ſettle a ſugar-work, without any proſpect of return for ſeveral years; it is true, it generally pays pretty well at laſt; but few are able to lie ſo long out of their money, in a country where the neceſſaries of life are ſo dear. A.

that they have in ſome of the iſlands ſcarcely left wood enough growing to ſupply their ordinary occaſions.

This will not, I hope, be the caſe in our intended new ſettlements in Eaſt and Weſt Florida: ſome tracts of land, beſt adapted to the growth of wood, ſhould be ſacredly kept near every townſhip; and the ſeveral parts of this wood ſhould be felled, for the uſe of the inhabitants, in ſuch regular rotations, that by the time the laſt part was cut the firſt ſhould be ready to yield a ſecond crop.

I am ſenſible ſome will laugh at my fears about a ſcarcity of wood in any part of America, as there is ſuch plenty of it; but of what uſe would thouſands of acres of wood be to me, if it ſhould be ſeveral miles diſtant from my plantation? and this will certainly ſoon be the caſe in every townſhip that ſhall hereafter be ſettled, unleſs ſome previous caution is uſed.

But not to digreſs too much from the intended ſubject of my letter, I ſhall now give you ſome account of the culture of the cane in the iſlands.

By a very curſory view of a cane-piece, it may eaſily be diſcovered whether the owner is a man of reflection; for ſome are ſo negligent, as, after putting the cuttings into the ground, to leave them almoſt entirely to their ſpontaneous growth, giving themſelves very little concern till they think the canes fit to cut and carry to the mill.

But what is the conſequence of this their negligence? Inſtead of a rich juice, ſtrongly impregnated with the ſalt, which afterwards granulates and becomes ſugar, they are furniſhed with a raw, crude, unripe, undigeſted and impure liquid, from which no ſugar can be extracted but by long boiling; and, when it is produced, is of a very inferior quality and value to what is produced from canes that have received a more perfect culture.

Every plant requires a certain portion of freely-circulating air, and the active heat of the ſun, to bring it to its natural maturity; and this neceſſary portion of either it cannot enjoy if the plants ſtand in their growth too near each other. The ſugar-cane, to perfect its rich juice, requires more air

and more ſun-ſhine than very many other plants; the ſuper-abundant moiſture in the cane ſhould, by the heat and dry air, be exhaled before it is fit to cut for the purpoſe of making ſugar: this tranſpiration is ſo neceſſary, that if it is by any means impeded, the expence of boiling is almoſt doubled, beſides the ſugar being greatly leſſened in value*.

The ſugar-cane is propagated by cuttings, about a foot, or a foot and a half long, which ſhould be taken from the middle of the cane.

When a proper number of the cuttings are procured, and the ground got in order, a furrow ſhould be drawn with a plough from one end to the other of the land; and at every three feet diſtance a ſingle cutting ſhould be planted; then another furrow ſhould be drawn at ſix feet diſtance from the firſt, and planted in like manner with cuttings; obſerving that the cuttings of the ſecond row be planted over-againſt the intervals of the firſt, in quincunx order; and the ſame rule ſhould be obſerved in the third, and all the reſt of the rows, till the whole piece is planted; and the pieces ſhould not be made too large, or the carriage of the canes, when cut, to the mills, will be very inconvenient.

I am ſenſible many will exclaim that this is by much too large a diſtance to allow betwixt the plants; but I own myſelf quite of a contrary opinion on many accounts; for among all the various cane-pieces I have ſeen, thoſe always yielded the beſt commodity, and the largeſt proportional produce, in which the canes had been planted at the greateſt diſtance one from the other.

It is very eaſy to plant a cane-piece too cloſe; but it is ſcarcely poſſible to plant the cuttings at too great a diſtance: the only ill conſequence that can reſult is a loſs of ground, and that is, as it were, nothing when compared to the loſs of a crop.

The lands in North-America which I would recommend to be planted with canes, are freſh, ſtrong, and very rich: this

* Our correſpondent's reaſonings on this ſubject are very maſterly, and well worth the attention of every planter and huſbandman. A.

this is another reaſon why the cuttings ſhould be planted wide; for, were they not, the canes would be drawn up to an immenſe height, but would never, for want of a due circulation of air about their lower parts, ripen ſo as to yield a rich juice that would eaſily granulate and produce ſugar.

The ſettlers in the ſouthern part of the continent of America are already well acquainted with the methods of cultivating and preparing indigo; and indeed it would be much more for their advantage would they plant the land firſt with indigo, which they intend making into a ſugar plantation: the indigo, which loves a rich, mellow earth, and is luxuriant in its growth, would abate the rankneſs of the ſoil, ſo as to make it more proper for the reception of the cuttings of the cane; and the crop of ſugar would be more certain than if the cuttings were planted in the uſual method in the freſh land *.

When the cane-piece is planted, it will be neceſſary to give the intervals frequent culture, as by that means the weeds, which in thoſe climates grow apace, will be extirpated, and the young ſhooting plants will every ſtirring be ſupplied with a freſh ſtock of food, which will greatly forward their growth.

The time for planting is juſt before the rains ſet in; and if the precautions above mentioned are obſerved, a cane-piece will continue yielding plentiful crops for twenty ſucceſſive years.

I could, it is true, give ſome direction reſpecting the method of boiling the juice extracted from the bruiſed cane; but this would be entirely ſuperfluous, as it is not to be ſuppoſed that any man would venture on planting canes, and eſtabliſhing a ſugar-work, without much better information than I, or any other planter, could give him in the compaſs of a letter.

There

* This practice of planting indigo, to abate the rankneſs of the ſoil, carries with it every probability of ſucceſs: we agree entirely with our correſpondent in his reaſonings on this head, and recommend the experiment to ſuch of our readers as may have an opportunity of trying it. A.

There are certain general principles which may ſafely, and even profitably be adopted: theſe I have ventured to lay down. As to the *minutiæ* in the ſeveral operations, they depend ſo much upon particular circumſtances and contingencies, that to make rules for their governance would be abſurd and uſeleſs: they muſt be left to the planter; and a due obſervance of the advantages to be made of particular circumſtances and accidents diſtinguiſhes the intelligent from the ignorant.

This letter is intended as a hint only to ſuch of your readers as have connexions with our ſouthern colonies: they may, if they will, improve it to their advantage; but they ſhould be ſtimulated to ſerve even themſelves.

I ſay they muſt be ſtimulated by ſome motives of immediate intereſt, or no canes will be planted in the continent: it is neceſſary, perhaps, I ſhould explain myſelf a little. I could wiſh the ſociety would offer a large premium for the firſt ſugars imported into England from North-America, made on ſome ſugar-work eſtabliſhed there: this would encourage our ſettlers to try the experiment; and indeed it can ſcarcely be called an experiment, as there is almoſt a certainty of ſucceſs.

The attempt muſt indeed ſucceed, for I am juſt informed by a friend, who lived many years at Seville *, that in the provinces of Spain which border on Portugal and Algarva, they cultivate the ſugar-cane to great advantage; and it cannot but be acknowledged, that the climate of the ſouthern part of the American continent is at leaſt as well adapted to the growth of the ſugar-cane as the ſouth of Spain.

It is time for me to conclude, leſt I ſhould occupy more room in your work than belongs to me: the ſubject I write on is uſeful, but not perhaps in ſo extenſive a degree as many other matters treated of by your correſpondents. I am,

GENTLEMEN,

London, Nov. 23, 1763. Yours, &c.

A Correſponding MEMBER of the SOCIETY of ARTS, &c.

* Madrid is ſupplied with large quantities of the beſt ſugars, for its conſumption, from the ſouthern provinces of Spain. Sugar has alſo been cultivated to ſome advantage in the ſouth of France. A.

NUMBER LXXVIII.

A Letter to the Editors, on a Method of feeding Horſes with new Beans and Oats without Danger.

GENTLEMEN,

AS horſe-meat of all kinds has been this winter very dear, I imagine the letter I am now writing will not be unacceptable to your readers: it is founded on experience, and will be found to anſwer in the practice.

I keep many horſes, which coſt me a great deal annually, and would coſt me much more but for the ſecret I am now about to diſcloſe.

Whoever has frequented the corn-markets in London, cannot but know that old horſe-beans and old oats ſell from ten to fifteen and more *per cent.* dearer than new corn; nay, I was the day before yeſterday at market, and bought ſome new beans of this year's growth, thirty *per cent.* cheaper than old beans were ſold the ſame day; and I alſo bought ſome new oats twenty *per cent.* cheaper than the old ones ſold for.

The reaſon for this difference of price, in the ſame ſort of grain, is pretty generally known: the horſe-keepers know, that new oats are a waſhy food, owing to a crude humidity that abounds in them; and when given in too large quantities, they fill a horſe with foul humours, beſides making him purſy and thick-winded; and they are no ſtrangers that new-beans will, by their abundant crudity, give a horſe the gripes, and other diſorders, equally fatal: many a good horſe has been well and dead in the ſpace of a few hours, by imprudently feeding him with new beans.

As this is the caſe, you will, perchance, be ſurpriſed that I ſhould chuſe to buy new beans and oats, rather than old, when the laſt, though dearer, are ſo much ſafer, and more heartening food: I will in a few words give you my reaſons.

I thought ſeveral years on the ſubject, before I ventured to change the old cuſtom; but, after very mature reflection, I imagined the only difference betwixt the old bean and that of the laſt year's growth was, that the firſt had, by a natural and gradual fermentation, thrown off its ſuperfluous and noxious humidity: this being the caſe, I conceived that the effect of this fermentation (viz. the throwing off the humidity) might be by art, as well as by nature, produced, and that in a manner much more expeditiouſly.

I made ſeveral experiments in this matter, and at laſt hit upon the method I now practiſe.

I well knew that the beans might be dried by means of fire; but I was at the ſame time ſenſible this might, without ſome previous preparation, fix the noxious quality in the corn.

It was neceſſary then to excite the beginning of a fermentation in the beans, that the noxious humidity, being looſened, as it were, might the more eaſily be expelled by the heat.

To effect this, I fill a large tub with new beans, among which I pump as much water as is required to wet them: I let them ſoak for about ten hours, when I draw off the water, and lay the beans in a heap on a floor: in this manner they lie, being frequently examined, till they begin to heat; when I ſpread them out thinner, and moving them often with a malt-ſhovel, let them lie in beds till the germ ſwells, and becomes turgid: I then carry them on to a malt-kiln, and dry them gradually; and as ſoon as they are cold, they are fit for uſe.

The great nicety of this operation is to prevent their ſprouting, or malting, which would injure them; and not to dry them by too quick a heat.

I prepare my oats much in the ſame manner, only there is no occaſion to ſoak them in water: if they are laid in a heap, and ſome water ſprinkled on them, ſo as to make them thoroughly moiſt, it will be ſufficient, and they will ſoon heat: there is no neceſſity for drying them ſo much as the beans; that is, they do not require ſo much heat,

nor

nor ſuch a length of time, to dry them, as the beans do, owing to the difference in ſize.

I have no doubt, but that ſuch of your readers, as chuſe to make the experiment, will be well ſatisfied with the reſult; and they will, I will be bound to ſay, find that corn, thus prepared, will agree as well with their cattle, as any old corn they can procure at the markets*.

As to the expence of this operation, it is very trifling; and the larger the quantity prepared at one time, the leſs it is; inſomuch that, all expences paid, they who follow my directions may have their corn, at leaſt three, if not four ſhillings in the pound cheaper than they can buy any in the market fit to give their cattle.

If it is convenient, I ſhould be glad to ſee this letter inſerted in your next month's publication, as it is chiefly at this time of the year it can be of any ſervice; for it is now that there is the greateſt difference betwixt the old and new corn, in their reſpective prices I mean.

To write for the eye of the public is new to me: if the ſtyle therefore of this ſhould not be quite ſo elegant, as that of ſome of the letters you receive, you muſt aſcribe it to the true cauſe, and of courſe excuſe,

GENTLEMEN,

Your humble ſervant,

London, Dec. 14, 1763. But new correſpondent,

A—— M.

* As there is no great hazard, or expence, in this experiment, we recommend the trial of it to ſome of our readers, requeſting they will favour us with the reſult; that, if the practice is ſalutary, it may become, by our recommendation, general, as it is, particularly in this metropolis, a matter of great moment. A.

NUMBER LXXIX.

A Letter to the Editors, on the Uſes to which Carrots may be applied by the intelligent and induſtrious Farmer.

GENTLEMEN,

BLAME me not for wiſhing to rank myſelf in the number of your public-ſpirited correſpondents. I ſee in your collection many hints which cannot fail being extenſively uſeful.

Being willing to contribute my mite towards ſo valuable a work, I ſhall make the uſes to which carrots may, by the farmer, be applied, the ſubject of my preſent letter.

And firſt I muſt mention, that nothing can exceed this root for fattening oxen*; but they ſhould have ſome ſweet hay to eat with it, and they will thrive much better on it if they are ſtalled. They eat it with great greedineſs; it nouriſhes them much, and ſoon makes them fit for the butcher; and if they are young beaſts, they always turn out fine meat.

Some oxen will not take kindly to eating them raw at firſt: for theſe, it is proper they ſhould for a time be parboiled; but they muſt every day be leſs and leſs boiled, till they come to eat them quite raw, which in a little time the niceſt beaſt will not be averſe to.

I find alſo carrots excellent for encreaſing the milk of cows, eſpecially in winter-time, and early in the ſpring, when there is a ſcarcity of graſs; and the milk they give when they feed on them has no bad taſte; but the butter made of the cream is generally a little higher coloured, being a full yellow; yet this is no inconvenience, as it is not worſe

* Much has been ſaid and written in praiſe of this root, as being a very hearty food for moſt ſorts of animals: it has even been aſſerted that one acre of carrots, properly planted, will fatten a greater number of ſheep, or bullocks, than three acres of turneps, and that the fleſh of theſe animals will be firmer, and better taſted. N.

worſe in quality than that which is made when the cows feed in the ſummer-months on the ſweet meadow-graſs.

I have, as yet, had but little experience reſpecting the uſe of carrots in feeding ſheep: it is true, I have fed a few on them, and they came on well; but whether they are more profitable, when applied to this uſe, than turneps, I cannot determine. The public would be greatly obliged to ſome of your readers, if they would make a fair experiment in this matter: the way to do it would be, to pick out of the ſame flock an equal number of wethers, if poſſible, equally thriving: let one half of theſe wethers be put to turneps, and the other half to carrots, being in every other reſpect managed alike.

Frequent obſervations ſhould from time to time be made on their health; and when they are fat, it may with great eaſe be pronounced, which is the food that can with the greateſt profit be given them.

If they are equal in their effects, the farmer muſt always govern himſelf by his convenience, and which ever of the crops beſt ſuits him, that he is chiefly to cultivate.

Many farmers ſow turneps inſtead of fallowing their land for wheat; and this is good huſbandry: but if the ſoil is proper for carrots, it would be much more profitable for the farmer to ſow them, and that for theſe very obvious reaſons; becauſe they impoveriſh the ſurface of the ſoil leſs, extracting the chief part of their nouriſhment from a great depth; and as they require that the land ſhould be deeper plowed, of courſe it will be in better tilth againſt the wheat-ſeaſon, and be in much better order to receive that noble ſeed.

Hogs are very fond of carrots, and they make them thrive apace; but they ſhould always be given to them boiled, as they will with great difficulty be induced to eat a ſufficient quantity of them raw *.

* There cannot be any better food for hogs than carrots. N.

This food fills them ſpeedily with fleſh, and will very well make them much more than half fat: it will be proper however to give them, before they are killed, either a few buſhels of barley-meal, or ſome grey-peas boiled: either of theſe foods will complete their fattening to admiration; though, for my particular part, I approve moſt of the peas, as they make the fat firmer, and waſte leſs in the pot.

Were the hogs to have nothing but carrots given them when they were put up to fat, this root would, it is true, fill them up with flaſhy fat and fleſh; but they would not ſpend ſo well; neither would they be ſo proper to pickle for pork, or to be made into bacon for keeping the whole year round.

I cannot help taking notice of one uſe to which I have applied this root, as it is quite out of the common road: I have fed dogs with it, and am morally certain that with the aſſiſtance of it a pack of hounds might be kept at a much cheaper rate than is now practicable with any other food.

I have not, it is true, experienced this, becauſe I keep no hounds; but I have three brace of pointers, and ſix couple of cock-dogs, which I have for a whole year together kept on no other food but boiled carrots, ſome ſlet milk and barley-meal being mixed with the liquor they were boiled in.

Before I came into this practice, I always uſed to feed my dogs with either horſe-fleſh, or barley-meal: when they had plenty of the firſt, I ever obſerved that they were remarkably ſubject to the mange; and if my dog-boy could not for any length of time get the carcaſe of a horſe, ſo as that my dogs were obliged to eat barley-meal alone; though they got fleſh, the barley was of ſo hot a quality, that their coats would be quite rough, and ſtand an end on their hides.

Since I have fed them with carrots in the manner above deſcribed, I find, with pleaſure, that the natural coolneſs of the roots abates the heat of the barley, or at leaſt qualifies

lifies it; and my dogs are always in good order, high wind, and conſtant health.

This matter is well worth the attention of your readers, as many gentlemen might ſave large ſums of money annually by putting it in practice. I find the uſe of carrots ſaves me, at leaſt, three parts in four of the quantity of barley-meal I formerly uſed; and as to the ſkimmed milk, if it cannot be got in quantities at a very cheap rate, it may, without any very apparent difference, or bad conſequences, be omitted.

Another thing, well worth the attention of your gentlemen readers, I ſhall now take notice of, which is, that they cannot find a better, or a more heartening food for their hunters, than carrots *, if given them with diſcretion: as to common plow, and cart horſes, they may eat them indiſcriminately; and this root will be found a very cheap food for them, as they need have no corn, and much leſs hay than they would otherwiſe eat.

I have a couple of hunters, which I value as being very good horſes; and theſe I feed in the ſeaſon with very little elſe beſides carrots, well cleaned from the dirt that naturally hangs about them, and loaves made of the mixed meal of barley and oats, ſometimes with a ſmall admixture of coarſe, but good wheat-meal; and if they require to be looſened in their bodies, I now and then give them ſome bran. As to hay, they eat, at this ſeaſon, but little of it, of oats none at all; yet they go through their work to admiration.

I have, all my life, heard it ſaid, that carrots were exceeding good to make a horſe long-winded; and ſome jockeys will, I have been informed, feed a broken-winded horſe ſome little time with carrots before they ſell him, when he may very well be paſſed off for a horſe that is only a little thick-winded.

A horſe-dealer, in my neighbourhood, when he buys a poor half-ſtarved beaſt, if he has youth on his ſide, always fats

* Horſes are extremely fond of theſe roots.

fats him up with carrots before he takes him to market; and this practice he finds to anſwer well, as the horſe is ſooner got into good fleſh with carrots than any other food; and they are beſides wholeſome, breeding in him no foul humours.

All the danger ſeems to be to the purchaſer, who, if he imprudently puts the horſe immediately to too hard work, is in a manner ſure to break either his wind, or his heart; for as the horſe was very ſuddenly got into fleſh, his ſtrength is not proportioned to his bulk, till he has been kept ſome time on dry meat, which will bring him about, and make him ſoon fit for any reaſonable work.

That a horſe thus fed ſhould not be immediately fit for any hard labour, muſt not be uſed as an argument againſt carrots being a proper food for horſes. It muſt be conſidered, that this man takes a half-ſtarved horſe, and gives him at once his fill of a nouriſhing food, in fact too nouriſhing, as it fills him with fleſh faſter than he can have time to gather ſtrength. It muſt alſo be conſidered, that during the time of his being fed on this root, he is not permitted to take any exerciſe; by which means the free circulation of his blood is greatly impeded, and he muſt of courſe be the leſs fit to be immediately, and without previous caution, put to hard labour.

A horſe, in this caſe, muſt have a ſuperabundant humidity, which would by perſpiration have been carried off, had he been permitted to have exerciſed himſelf moderately; but this being prohibited to him, though the humours whilſt he is thriving continue as it were ſtagnant and innocuous, yet, when once ſet in motion by too hard labour ſuddenly given, they naturally become peccant, and ſhew themſelves in different ſhapes.

I hope I have ſaid enough to vindicate my favourite root from any aſperſion*: I have found it very good and

* Mr. Miller adds another uſe to which carrots may profitably be applied. He has, he ſays, known them cultivated for feeding deer in parks, which has proved of excellent uſe in hard

and ſerviceable: as ſuch, therefore, I cannot but in juſtice report it.

If this appears in your collection, I may probably again write to you.

GENTLEMEN,

Dec. 2, 1763. Your very humble ſervant,

An ESSEX FREEHOLDER.

NUMBER LXXX.

A Letter to the Editors, on the Benefit of laying up a Store of Turneps againſt the Winter.

GENTLEMEN,

I Perceive that a perſon, who ſigns himſelf an Eſſex Landholder, has written you a letter, marked N°. XLVI, on the culture of turneps: his method is, in general, the ſame I practiſe myſelf; it muſt therefore, of courſe, meet with my approbation.

Yet, as this piece is entirely confined to the culture of turneps, without ſaying much about the ſpending of them, it gives me an opportunity of enlarging a little on this head, by way of ſupplement to your above-mentioned correſpondent's letter.

I have, in my time, ſown a great deal of land in turneps, and have applied them with great advantage to various uſes; but our chief reaſon for cultivating them in this county is for feeding and fattening ſheep.

It is almoſt needleſs to ſay, that they anſwer this purpoſe extremely well: their uſe is too well known to all the eaſtern farmers, to be in theſe days controverted.

We

hard winters, when there has been a ſcarcity of other food: in ſuch times great numbers of deer have periſhed for want, and thoſe which have eſcaped have been ſo much reduced, as not to recover their fleſh the following ſummer; whereas thoſe fed with carrots have been kept in good condition all the winter, and upon the growth of the graſs, in the ſpring, have been fat early in the ſeaſon.

We have various methods of ſpending them: ſome fold their ſheep on the land where the turneps grew; I have done this, but it is not a method I approve of: however, for the benefit of ſuch farmers as chuſe to practiſe it, I ſhall give one caution; which is, that they uſe wicker hurdles for folding their ſheep, which will otherwiſe be apt to thruſt their heads through the bars, and, tangling themſelves, are by that means often killed in the night, to the great loſs of the owner.

If, however, it ſhould not be convenient to the farmer to get theſe wicker hurdles, but he ſhould be obliged to take up with thoſe made of reſt ſtuff in form of a gate, let him then be careful, when he has ſet his hurdles, and ſtaked and bound them tight, to pull up all the turneps that grow within two or three feet of the outſide of the fold, and throw them over the hurdles for the ſheep to eat within-ſide.

This will take away any temptation the ſheep may have to put their heads through the bars, and they will, by that means, eſcape the danger of being ſtrangled.

Every animal is fond of liberty; and though the ſheep will bear confinement, perhaps, better than any other creature, yet whoever has ſeen them when firſt driven into the fold, muſt have obſerved that they naturally go round the hurdles to try to find an opening to get out at: by this means the turneps which grow near the hurdles are trampled on, dirtied, and ſpoiled. For this there is a very eaſy remedy; let the ſhepherd only pull up all the turneps that grow near the inſide of the hurdles, and all will be well.

I obſerved before, that I am not fond of giving my ſheep turneps as they grow: I think it much the better way to have them pulled; by this means they have an opportunity of eating the whole root, and my ſtock of winter-fodder goes much farther; whereas, when they feed on the turneps as they grow, they generally ſcoop them out, and leave a hollow ſhell in the ground, which, though it may afterwards be forked up, the ſheep will ſcarcely even by hunger be induced to touch, as it cannot but be ſoked by the dung, urine, and dirt, from the feet of the ſheep.

I find it then the beſt way, to have my turneps pulled before they are given to my ſheep; they go much farther, and do them more good.

But in this method there is one ſeeming inconvenience, which is, that in froſty weather, when the ground is hard, I cannot have them pulled; yet this difficulty is very eaſily removed, by laying up, at the beginning of the winter, a ſufficient ſtore of turneps, ſecured from wet, and not much expoſed to froſt.

I think it worth while to have a building particularly dedicated to this uſe, and find it anſwer well: it is built in form of a ſmall barn, and boarded round.

In the beginning of the winter, before the froſt ſets in, I have a large quantity of turneps pulled, and the dirt is carefully ſcraped off them; and, after cutting off the heads and tap-roots, I cauſe them to be regularly laid in my ſtore, with this caution, however, that all round the ſides next the boarding my men lay ſtraw, to keep out the froſt. The heads, or tops, I give to all my cattle in general, as they are cut off; by which means I, in fact, ſuffer no loſs*.

I find theſe ſtored turneps a happy reſource when hard weather comes on; then I open my repoſitory, and deal them out to my ſheep in ſuch a manner that there may be no waſte; and as ſoon as the weather breaks, and the earth becomes leſs hard, I reſort again to the fields, and have them pulled as uſual.

For ſome years I had another manner of ſtoring my turneps, which was by digging a deep pit in a ſandy, dry field, which being filled with turneps, they kept there very well; yet, as this method was ſubject to many inconveniencies, I left it off.

I have diſcovered another uſe for the turnep, beſides feeding my ſheep, oxen, and cows with it, which I muſt mention before I conclude this letter. I find it agrees re-

* This method is doubtleſs a very good one: we therefore earneſtly recommend it to our readers. O.

markably well with hogs, which will eat of it greedily, and thrive on it apace.

I have ſeveral times tried this, and have often killed fine young porkers that had for many weeks eat nothing but turneps boiled in ſwill, or waſh, till they were tender.

I have at other times given turneps to large hogs, that have been put up to fatten, in order to their being killed and ſalted for family uſe; and here I was not diſappointed in my hopes; they always came on well: but I made it a cuſtom to give them, for a week or two before they were killed, a few buſhels of boiled peas, in order to harden their fat, that it might not boil away in the pot*.

I gave them boiled peas rather than raw, becauſe, having been long uſed to eating the ſoft turnep, I found they did not afterwards take kindly to the hard, raw pea.

Hogs may eaſily be brought to eat raw, unboiled turneps; but it is much better to boil them when the hogs are to be fattened; for, though they will eat enough of them raw to keep them in tolerable good plight, yet they will not eat enough to fatten them apace.

I cannot better finiſh this epiſtle than by aſſuring you, that I approve much of the pieces you have already publiſhed: their utility ſtands confeſſed, and the great variety of ſubjects they treat on cannot but make them very agreeable reading to a lover of nature. Let me beg you will believe me,

GENTLEMEN,

Norwich, Your grateful admirer,
Dec. 2, 1763. C. K.

* If hogs will thrive ſo well, as our correſpondent ſeems to ſay, on turneps, it will be a profitable acquiſition to many poor people, who have it not in their power to purchaſe much corn. N.

NUMBER LXXXI.

A Letter to the Editors, from a Member of the Society of Arts, &c. *recommending Mr.* Rocque's *Method of cultivating Lucern, in preference to Mr.* Miller's.

GENTLEMEN,

I OBSERVE, in your laſt month's publication, a letter marked No. LXVIII. (page 301.) in which your correſpondent, after a word or two in recommendation of lucern, refers your readers to Miller's Gardener's Dictionary for information with reſpect to its culture.

I allow Mr. Miller to be a ſenſible man, and that the world is much indebted to him for his labours; but it is impoſſible he could experimentally know the advantages of every method he has recommended: he muſt have very often depended on the report of others, and was of courſe liable, in ſome points, to be deceived.

That this was the caſe, with reſpect to what he ſays of lucern, I will not take upon me to ſay, as I imagine the method he has pointed out is the beſt that came to his knowledge.

The Romans knew nothing of the drill-huſbandry; yet their *medica*, the modern lucern, gave them large crops, and was in very high repute. Did we know their methods of cultivating this plant, we ſhould, in all probability, meet with the ſame ſucceſs they did.

I own I am as little for innovation in matters of huſbandry as it is poſſible: it is very difficult to bring any, the leaſt variation from the old methods into practice*; how much more ſo then muſt it be to bring into uſe methods entirely new?

* This is a melancholy truth, which every intelligent practical farmer can abundantly teſtify from every year's experience. N.

I approve of the new culture, when applied, under proper reſtrictions, to corn and pulſe; but I own I think it quite prepoſterous to extend it to the artificial graſſes. The only benefit lucern can receive from being planted in rows with intervals, is, that the frequent ſtirrings of the horſe-hoe will keep down the natural graſs, which is very apt to hurt this crop; but this may be effected by other more eaſy means.

I know it will be urged, that the new huſbandry will ſupply a ſmall number of plants with ſo much nouriſhment, that they will be equal in weight and quantity to a much ſuperior number of plants which had not the benefit of that culture. But is this, in the preſent caſe, an advantage or a diſadvantage? I think rather the latter, and that for this plain reaſon.

I will readily allow that as heavy a crop of lucern may be got from an acre of land in the drill-huſbandry, as in the method I ſhall hereafter lay down, as now practiſed by Mr. Rocque, of Walham-Green, who has, I believe, brought the culture of this plant to greater perfection than any preceding planter, and has made more profit from the ſame quantity of land*; yet I think this allowing a great deal. However, the advocates for the new huſbandry, when applied to artificial graſſes, muſt confeſs, that it is more expenſive than the method practiſed by Mr. Rocque; and they muſt alſo confeſs, that though their crop may be as heavy, it will be of a much coarſer quality, as the ſtalks will be larger, more ſticky, harder, and more diſguſtful to the animals when given to them in hay: on the contrary, the lucern raiſed in Mr. Rocque's method is large enough to yield a full crop, yet by no means ſticky; and the cattle eat it with as much greedineſs as the Romans deſcribe their cattle to have done the *medica*.

Mr. Rocque lays it down as a maxim in his practice, that lucern will grow on any ſoil, provided it is not ſo wet as to rot the roots.

The

* See the piece marked No. LVI.

The ſtrongeſt land is however to be preferred, and the deeper the ſoil, the better will be the crop, as the roots will have room to extend themſelves.

The land ſhould be prepared in the ſame manner as for barley, being plowed, harrowed, and cleaned from all ſorts of weeds; and the ſtronger the land is, of courſe the more plowing and harrowing it will take to mellow it, ſweeten it, and bring it to a fine tilth.

When this work is done, the lucern ſeed muſt be ſown broad-caſt, (not in drills) in fine weather, after the rate of about fourteen pounds to an acre.

This allowance of ſeed will be ſufficient to ſupply the number of plants that will be wanted to yield a full crop; but they will not ſtand ſo thick as to ſtarve one another, though there is ſome allowance for part of the ſeed failing*.

But ſhould every ſeed take, the method of culture hereafter recommended will ſufficiently reduce the number of the plants, and, without the trouble and expence of the new huſbandry, give each plant ſpace enough to extend its roots, and collect the neceſſary quantity of nouriſhment.

To return to the culture, before the laſt plowing, the land ſhould be manured, not with old rotten ſtuff, as is uſual; but with freſh ſtable-dung, that has been thrown up in a heap three or four weeks to heat and ferment. This will enable the young plant to puſh forth its leaves and ſtalks with luxuriance, and get forward in its growth the firſt ſummer.

When the dung is in full fermentation, it is to be laid on the land, and plowed in as ſoon as poſſible, that the ſalts of the dung may not have time to evaporate: the land muſt then be harrowed and ſown, and afterwards again

* Let land be ſown with what crop it will, ſome allowance ſhould be made for the failure of ſeed: if it is a crop that requires hoeing ſoon after it comes up, like turneps, &c. it may eaſily be thinned, and the plants ſet out to a proper diſtance: the loſs of ſeed will not be great. N.

again harrowed with a light or buſh-harrow; and, laſtly, rolled to ſettle the ground and break the clods.

If corn is to be ſown amongſt it, it ſhould be only half a crop; otherwiſe it will be apt to deſtroy the lucern, eſpecially if it proves a wet ſeaſon, and the corn is rank: but if no corn is ſown amongſt it, the lucern will thrive much better.

Lucern may be ſown from the beginning of March to the end of May; but April, in dry weather, is the beſt time.

If much rain falls on the new-ſown lucern, it will be apt to ſwell too faſt, and burſt; but if it holds fine three or four days, it will be in no danger.

Mr. Rocque does not approve of drilling the lucern, becauſe the roots are too much confined in the drills: they ſay it is to clean the lucern between the rows that they drill it; but it is for want of knowing the nature of lucern, and it diſcourages people from ſowing it, drilling and hoeing being very expenſive ways; the quickeſt and cheapeſt, and by much the beſt way, being to ſow it broad-caſt, like clover, as the roots will ſtand nearly at equal diſtances one from another every way.

Lucern requires, it is true, a great deal of nouriſhment from the earth; but there is no occaſion this nouriſhment ſhould be ſupplied by the ſurface. It is well known that the roots of lucern will run to a great depth in the ground, from whence they muſt of courſe extract a large quantity of food: this ſpares the ſurface; and in fact the land where lucern grows requires only that the natural graſs ſhould be prevented from getting to a head, which it is in our climate very apt to do, and if let alone would ſoon choke up the lucern.

It is mentioned above, that if corn is ſown with lucern, it ſhould be only half a crop: ſome of your readers may not, perhaps, readily comprehend the meaning of this expreſſion; therefore, to render it more clear, I ſhall here obſerve, that when barley or oats are to grow with lucern, a buſhel only of either, according to Mr. Rocque's method,

thod, is to be ſown firſt on an acre, then fourteen pounds of the lucern *.

One thing is to be obſerved; that if the corn, notwithſtanding its being ſown ſo thin, ſhould grow ſo rank as to endanger the lucern, it will be much beſt to mow it before the harveſt, as it is better to loſe the crop of corn than to kill the lucern.

The barley, or oats, however, need not be entirely loſt, as they may, when mown, be given green to cattle; or, if the weather is fine, will make excellent hay, provided they are properly dried; and it is beſt to do it in the ſwarth, as the rich juices are in that manner leſs exhauſted. To ſow it later than May is dangerous, for fear of a dry ſeaſon, or its being eat up by the fly.

Lucern will not grow on freſh-broke up land; it muſt be tilled a year or two: peas and beans, for one year, will prepare the ground; but, above all, potatoes excel for ſweetening and mellowing of land: the next ſeaſon a fallow for turneps; and when the turneps are fed off with ſheep, it will greatly enrich the land, which ſhould then be prepared for lucern.

In regard to the tillage, and time of ſowing the lucern ſeed, the nature of the ſoil muſt be conſidered. Heavy ſtrong land will require more plowings and harrowings, and to be later ſown; light land will need fewer harrowings and plowings, and to be ſown earlier, that the young plants may have ſtrength to ſend their roots deep into the ground, before the hot dry weather comes on to hurt them; and if, for the firſt time, the land had a trench-plowing †, it would be of great advantage.

In

* See the latter part of the piece marked No. LXVI. p. 298.

† A trench-plowing is when the plow goes twice in the ſame furrow; the firſt time a ſhallow furrow, to turn down the weeds; and the ſecond time you are to go as deep as you can, to turn up freſh mould, and to make room to bury the weeds the deeper. This ſerves two good purpoſes; one is to bury the weeds deep enough to rot; and the other is, that it makes your ſtaple deeper, whereby the roots will run down the ſooner out of the reach of dry weather; and if the ſoil, that is turned up, be ever ſo ſour, the future plowings, harrowings, and manuring, will ſweeten it ſufficiently for the reception of the ſeed.

In Languedoc they ſow no corn with the lucern; and when it is ſix or ſeven inches high, they mow it; by which all the ſeeds of annual weeds are cut off and killed.

In Normandy, the climate being much the ſame as in England, they ſow corn with it.

In Picardy, and about Paris, they ſow it, ſome with, others without corn.

At Avignon, when their lucern begins to decline, they manure their ground and plow afreſh, and ſow it with corn and lucern; and the old roots, growing again with the ſeed, make another fine crop: the plowing will not hurt the old roots.

If a full crop of barley is ſown with lucern, and the barley grows very ſtrong, the beſt way is to mow the barley when it is in the ear.

If forward peas are ſown on new-broke-up land to prepare it for lucern, it may be done in one year, and turneps ſown on it as ſoon as the peas are off: the turneps may be fit to feed off by Chriſtmas; and as ſoon as the turneps are off, the land ſhould be plowed, and lie fallow till a proper time to ſtir it again; or it may have a trench-plowing, as before directed.

This method of giving land a trench-plowing, to prepare it for lucern, is much to be recommended, as it ſtirs the earth almoſt as deep as if it was dug with a garden ſpade: of what advantage this muſt be to a plant that ſends its roots deep for nouriſhment, need not be mentioned, as it cannot but be obvious to every reader.

Was labour cheaper than it is in England, it would doubtleſs be much the beſt way to dig by hand all the land that was deſtined to lucern: many advantages would reſult from this method of tillage, and particularly the weeds and graſs would not be ſo apt to grow as in plowed land.

I would heartily recommend it to ſome of the gentlemen in Ireland, to ſow with lucern ſome of their land that has borne a crop of potatoes: it could not fail ſucceeding, and they would have a fair opportunity of trying what crops this plant will, when beſt cultivated, yield*.

I

* We heartily join our correſpondent in recommending this experiment to the gentlemen of Ireland. N.

I cannot but think, that on good land that had borne potatoes, there might be five good mowings in a year, particularly in Ireland, where the climate is rather milder than in England; and this without injuring the roots. An eaſy experiment would, however, ſoon make this matter known: I therefore heartily recommend it to the attention of your Iriſh readers; they are every day improving their lands, and will, doubtleſs, not ſuffer this hint to paſs unnoticed.

When we conſider the many advantages reſulting from the culture of this plant, it is aſtoniſhing that it ſhould ſo long eſcape our regard: the hint was given us by the Roman writers on the ſubject of agriculture, but we were too much attached to old cuſtoms to improve it.

In hot ſummers the ſeed may be ſaved in England, but not from the firſt growth; that being generally too rank, and ſubject to rot at bottom.

In Languedoc they ſave it from the third growth; but as this climate is colder, it will not have time to ripen, unleſs ſaved from the ſecond growth.

A dry ſoil is beſt to ſave the ſeed upon, as it is not ſo apt to grow rank; and then it may poſſibly do from the firſt growth.

As lucern, if the land is good, will bear ſeveral crops in one year, like clover; what Mr. Rocque means by the firſt, ſecond, and third growths, are, he ſays, the different crops it produces in one ſummer, which are three, four, and ſometimes five mowings*, in caſe no ſeed is ſaved from it; if ſeed is ſaved, it muſt be from the ſecond growth: the ſeed will be ripe in September, and muſt be gathered by hand.

When the plants are one year old, it will be proper, with a large harrow, to go over your land as often as is ſufficient to root up annual weeds and graſs.

The harrow will not hurt the lucern, the roots of it being very tough: this muſt be done in dry weather, before it

* Mr. Rocque, however, does not in general approve of its being mown five times in a ſummer; as the plants are apt to bleed too much, and this damages the root.

begins to ſprout, which is very early in the ſpring, that the weeds and graſs may die; and if there are any patches of ground where the ſeed miſcarried, a little ſeed muſt be ſown, and the ſpot harrowed *: a dreſſing with rotten dung, at the ſame time, will repay the expences of it by a larger crop: if the harrow ſhould cut or wound any of the roots, they will ſprout and grow notwithſtanding.

The ſecond ſpring, after ſowing, it will be proper to plow the ground, where the lucern grows, with a drill-plow, with a round ſhare, without a fin or feather, and without a coulter, to prevent the roots being too much hurt. It ſhould lie rough a few days to dry and mellow; then, in fine weather, be harrowed down, to mow it the cloſer.

One, not uſed to the culture of this plant, will be apt to think, that plowing will deſtroy the lucern; but any gentleman, that will take the trouble to call at Mr. Rocque's, may be convinced that experience teaches the contrary.

To make hay of lucern, it ſhould be mowed as ſoon as the bloom appears, or rather ſooner: it muſt not be ſpread, like common graſs, but lie in the ſwarth, like clover, and turned in the ſame manner; or the leaves, which are moſt nutritive, will drop off †.

If ſuffered to ſtand too long before it is mowed, the ſtalks will be too hard for the cattle to eat it, and it loſes much of its goodneſs.

The hay is good for all ſorts of cattle; and when horſes are fed with it, they ſhould not have their full allowance of corn; the lucern anſwering, in a great meaſure, the purpoſe of both corn and hay.

It is alſo the moſt profitable of any ſort of fodder to feed horſes with in the ſummer, by mowing and giving it to them green.

If

* If the weather ſhould be very dry, it may not be improper to give theſe ſpots, after ſowing, two or three gentle well-timed waterings; always remembering, that too much wet deſtroys the ſeed. R.

† It ſhould rather be ſuffered to wither by degrees, than be dried by too ſudden and ſcorching a heat. N.

If the land is good, the produce is incredible; and according to the goodneſs and depth of the ſoil, ſo will the crops be.

Mr. Rocque ſays he has ſeen lucern mowed five times * in a ſeaſon; yielding, at the five mowings, nearly eight loads of hay *per* acre.

The ſpring plowing amongſt the lucern muſt be annually repeated: it kills the graſs and weeds, and makes the ground ferment, which promotes vegetation; and the oftener it is refreſhed with a little dung on the ſurface, the bettter it will pay for the trouble of cultivating it. If the dung is laid on before the winter, that the ſalts may be waſhed in by the rain and ſnow, and plowed in, in the ſpring, it will greatly add to the profit.

This is the ſubſtance of Mr. Rocque's account of the culture of lucern; but as different ſorts of ſoil may require different methods of tillage, he has ſubjoined the idea of a harrow, with two handles like a plow, which may ſerve in light land inſtead of the plow, and will ſave ſome labour.

The teeth muſt be ſet at ſeven or eight inches apart in the firſt row, and about five inches long without the wood. The ſecond row muſt be placed nine or ten inches behind the firſt, and ſo that the teeth of the ſecond row may be againſt the ſpaces of the firſt row; and they muſt be an inch longer than thoſe in the firſt row, ſo that the ground, being looſened a little by the firſt row, the teeth of the ſecond row may go ſomething deeper; and the teeth of the third and laſt row muſt be an inch longer than thoſe of the ſecond, and placed ſo as that they may go in the ſame tract with the teeth of the firſt row.

The harrow muſt be made of one ſolid piece, four or five inches thick, and the lower ſide muſt be rounded off towards the hinder part where the teeth are longeſt; whereby the perſon that holds it by the handles, preſſing down a little,

* Let it be remembered, that five times will, in general, be too often to mow it in one ſeaſon; three times will be ſufficient, being beſt fed in ſpring and autumn. N.

may force the ſecond and third rows of teeth deeper than the firſt; and, by bearing up a little, he may prevent any but the firſt row from working. A very little practice will be ſufficient to make any one uſe it as occaſion requires; and it will be ſo ſteady that no unevenneſs of the ground will be able to throw it out of its work, as a clod or ſtone will a common harrow.

Let it be remarked, that the foremoſt row of teeth are placed in a line acroſs near the middle of the block or plank; the other two rows behind that; and the fore part of the harrow ſhould be heavier than the hind part when the weight of the harrow is ſuſpended on the firſt row of teeth. The teeth ſhould be pretty ſtrong, and round; their being ſquare, as uſual, may hurt the roots a little, which is to be avoided as much as poſſible, though the conſequence would not be very great.

By what has been ſaid, your readers will eaſily conceive that the above method, recommended by Mr. Rocque, on his own experience, to all who conſult him on the ſubject, is very different from that laid down by Mr. Miller, in his Gardener's Dictionary; and what will make it well worth attention is, its being no ways eſſentially different from the old method of huſbandry.

Farmers are fond of ſowing broad-caſt, it being no eaſy matter to make them comprehend the utility of a drill-plow, on any occaſion: the ſight of ſo complicated an inſtrument terrifies them; they think it moves by clock-work: and as to the labourers, it is a very difficult matter indeed to get them to hold it.

I am fully ſenſible, as I have already obſerved, of the good effects of ſowing corn and pulſe regularly with intervals, but cannot approve of this method when applied to artificial graſſes; and it would be well if we were to improve our old practices, before we ſhould even attempt to bring the new methods into general uſe.

To

To practiſe theſe methods with any proſpect of ſucceſs, a man ſhould know ſomething of the theory of vegetation; which few farmers do. Let, therefore, the gentlemen on their demeſnes ſhew the good example; let them ſee that their lands are properly cultivated; and if the methods they uſe are attended with ſucceſs, the practical farmers in the neighbourhood will, prompted by a view of gain, be ready enough to imitate. I am,

GENTLEMEN,

London, Your humble ſervant,
Jan. 7, 1764. A MEMBER of the SOCIETY.

NUMBER LXXXII.

A Letter to the Editors, from a Paper Manufacturer, recommending the Uſe of Woollen Rags, reduced into Flocks, as a Manure.

GENTLEMEN,

I TAKE in your papers on agriculture, *&c.*—the deſign I greatly admire, and hope you will meet with the encouragement it ſo well deſerves.

Herewith you have an hint, which if thought of any ſervice to the public, am certain room will be made for it in your valuable repoſitory.

Woollen rags * are well known to be an excellent, laſting, manure. The common method (I think) is to make a dunghill, *&c. &c.* of them †.—I am perſuaded, from

* Any animal ſubſtance is good manure, and woollen rags have, by frequent experience, been found to be particularly ſo, as being not only part of an animal, but they are alſo ſuppoſed to be ſtrongly impregnated with animal *effluvia*, by being uſed, perhaps, for years before for clothing. N.

† Woollen rags are often chopped very ſmall, either by an engine, or by hand, and afterwards ſown on the land: this is a very good way; but if any ſpeedy effect is required from this manure, we join with our correſpondent in thinking that the beſt way is to reduce them into flocks by means of a paper-engine. N.

from experience, that reducing them into flocks in a paper-engine (which a perſon not having the conveniency of having worked by the force of water, may have one worked with an horſe) renders the article much cheaper, as a ſmall quantity, when reduced to flocks, will be ſufficient for an acre, being then, as it were, ſown; conſequently it goes much farther, the manuring is more regular, and will anſwer, I am certain, exceeding well.

I flatter myſelf that I ſhall often be entertained with many ſubjects on dying, which I am inclined to believe is greedily deſired by many.

I am a manufacturer of paper, and if I thought that I could be of any ſervice (*pro bono publico*, as Mr. Henriques ſays) I would ſend you a line or two * on the ſubject, and am,

Dec. 24, 1763. Your moſt obedient.

E. D.

* We are greatly obliged to our correſpondent for his kind offer of aſſiſtance, and ſhould eſteem it a favour if he would give the public his ſentiments on the following heads.

1. By what means could the materials for making paper be reduced in point of price, and augmented in quantity?

2. Might not other materials, as proper as thoſe now in uſe, be diſcovered and pointed out?

3. If the materials were more plentiful and cheaper, would there be any occaſion to import paper?

4. Why cannot we make paper as good, and as cheap, as that made in France, for the uſe of the copper-plate printers?

5. Why cannot we equal our neighbours the Dutch in this manufacture?

6. Why are not papers, in general, as good now as they were ſome years ago? and is it owing to any encreaſe in the conſumption, and of courſe in the demand, ſo that they are made with leſs care, and worſe materials?

7. Do not the manufacturers ſtrive to out-do each other in making a cheap, rather than a good commodity?

8. As paper, particularly that uſed by printers, ſhould be durable, will not ſome bad conſequences hereafter enſue from the preſent imperfect method of making it? Should our obliging correſpondent be kind enough to anſwer all, or any of the above queſtions, other matters equally intereſting may probably occur to his recollection. N. A. R.

P. S. I think that a dunghill made with a layer of dung, lime, earth, and flocks, would be an excellent compoſt *.

NUMBER LXXXIII.

A Letter to the Editors, from Mr. John Irwin, *on the Nature and Culture of Potatoes in* Ireland.

Reficit Induſtria, et ditat.

GENTLEMEN,

THE potato is become a root of ſuch immenſe utility, eſpecially to the poorer ſort, within this century, that too much, methinks, cannot be ſaid towards improving, and extending the culture of it †.

In Provence, Dauphiny, Switzerland, and ſeveral other parts of Europe, and even in America, it yields commodious, abundant relief to the more indigent, as being eaſily and plenteouſly propagated in almoſt every kind of ſoil.

In Ireland particularly it is the principal food of the poor during the greater part of the year, without which, ſince the late unproportionable riſe of lands in that kingdom, to the

* We agree with our correſpondent that this would be an excellent compoſt, provided it was ſuffered to lie a conſiderable ſpace of time to ferment and meliorate, and was at proper intervals turned. It ſhould be obſerved however, that the nature of the earth mixed in this compoſt ought to be as oppoſite as poſſible to the ſoil it is to be laid on: if on a clay, ſand ſhould be mixed with the compoſt; but if a light porous ſoil is to be manured, clay ſhould make a part of the compoſition; for the manure is ſuppoſed to act as a corrector, as well as an enricher of the land, which ſtands in need of it: ſome ſoils, in fact, want correcting only, being in their nature replete with vegetative ſalt, yet, through the compactneſs of their parts, improper, whilſt uncorrected, for the ſupplying of plants with the neceſſary food. N.

† Such notes, to this piece, as are diſtinguiſhed by the ſignature IR. were added by Mr. Irwin, before it came to our hands. R. N. E.

the trade of it *, they could not well ſubſiſt. And, indeed, it ſeems a particular favour of providence ſent to them on this account.

In times, not very remote, lands were cheap there, and the peaſantry, conſequently, lived on nouriſhment ſomewhat more luxurious, and diverſified: their labour alſo was leſs burthenſome. But now, being obliged to work hard at four-pence and ſix-pence a day †, and their rents conſiderably augmented, it will not ſeem ſurpriſing that this root alone has become the ſtaple of their ſupport, and that they have been the firſt people in Europe, or, perhaps, in the world, that have led the example in an extenſive improvement of it. This may *naturally* be ſuppoſed to ariſe from *cloſe-preſſing* neceſſity, the moſt cogent and inſpiriting of all motives.

In truth with much reaſon; for a poor labourer, in that ill-fated country, is driven to ſeek his ſole refuge for ſubſiſtence in this root, from the inexorable impoſition of a hard-hearted landlord, (ſorry I am to have it to ſay, too many of them *grind* the poor ‡; but hope it will not be long the caſe) who thinks he cannot get too much for his land out of the perſons, or purſes, of his dependents, and who hath ſo inverted the old cuſtoms, that a hewer of wood, and drawer of water, (and many of theſe perhaps deſcendants of former proprietors) can afford himſelf but a miſerable ſcanty platter of potatoes, ſeaſoned with a *palatable* grain of ſalt, and waſhed down with a draft from the next rivulet, to ſupport the fatigue of thirteen hours *(ſtatute quantity)* of unceaſing labour, about his *ancient* manſion-houſe, or

* It is, indeed, ſurpriſing to think how ſome farmers contrive to pay their rents; many farms, which uſed to let for ſeven ſhillings, and eight ſhillings an acre, not many years ago, are now rented at fourteen, ſixteen, and even ſeventeen or eighteen ſhillings an acre. N.

† In and about Dublin, common labour is from ten pence to eighteen pence *per* day, or nearly thereabouts. IR.

‡ Otherwiſe, oppreſſing the indigent, or lower claſs of people; a vulgar expreſſion in Ireland. IR. To grind the faces of the poor is alſo, in England, a common expreſſion. R.

or in his *elegant* gardens, *well*-laid-out closes, or *refreshing* bog-holes *.

If such simple living was the diet of our first ancestors, (as reported) how much are they to be envied for the healthfulness of it, in comparison to that of our over-gorging, luxurious times! Or, if such be the condition of a province, speak, oh! Ireland, how happy thy lot to be annexed to Britain! by which, at least, if thy poor have not full meals, they have healthy ones, *liberty*, property, *independence*; and, in imitation of their elder sister, they may possibly soon run a madding into riot and licentiousness: the sweets of liberty neither perhaps comprehend.

But to quit invidious comparisons, (which the present poor *Corsicans* might as justifiably make on a similar occasion—) and return to our purpose,

The potato is a root, a little of which is very filling, quickly appeasing hunger; but by no means a lasting solid nourishment for a labourer, as evidently testify the squalid looks of numbers of the poorer Irish; though at the same time it is in general wholesome, agreeing with most stomachs that can vary their food; but, like other productions

* I have heard many of the poorer Irish complain of this wretched diet as long as I can remember. But as the country is naturally fertile, 'tis to be presumed, in another century, husbandry will be so improved there, as to have beef, pork, pulse, bread, &c. as plenty as in England. By the means of taking *con-acres*, otherwise *oat-soil*, which their own labour, and that of their wives and children, in spinning linen and woollen yarn, enables them to do with great difficulty, they afford themselves now and then a little oaten bread, (a great dainty with the poor souls!) and this they find refreshes and invigorates them much. If with this they can compass the milk of a cow or two, 'tis but what the smaller part of them can have, grazing being greatly risen on them of late years, and very immoderately so, even unproportionably high, as the lands have been risen by the chief, or head landlords. As to wheaten bread, which is now in plenty in most countries of Europe, they scarce know any thing of it. It would be too great a dainty for them (as their landlords imagine) though almost as easily procured as oat bread. Ir.

of the earth, forbid in many caſes by the medicinal tribe *.

It is however very favourable to population; for in the weſtern parts, eſpecially, of Ireland, it is common to ſee ſix, eight, ten, and ſometimes more children, the iſſue of one couple, ſtarting almoſt naked, preceded by two or three cur-dogs, out of a turf-wall hut, or cabin, to behold the traveller, or any other incidental cauſe of curioſity.

The poorer ſort being generally faithful in wedlock, theſe children are, for the moſt part, born uncontaminated by our modiſh London and Paris diſorders. Health is ſtreaked over their roſeate cheeks, like the beautiful tinge of a ſummer's morning; their limbs are robuſt, and ſomewhat clumſily ſhaped, in this differing from the American, but far exceeding him in a fine complexion. This however, to the great detriment of the kingdom, is ſoon deſtroyed by the ſmoke of their barbarouſly-conſtructed cabins, there being no outlet for ſmoke in them but the door; otherwiſe, we might well preſume, the female peaſantry of that country would be, at leaſt, as handſome as they are in England †. Nay, as it is, London can witneſs, there are exqui-

* Mr. Ellis, and others, give very juſt accounts of the healthy, nutritive qualities of this invaluable root; but had he been obliged to live entirely on it at hard labour, as moſt of the poorer Iriſh are, he would have often found occaſion for the addition of a little bread, beef, and other more ſubſtantial aliments to enable him to get well through the fatigue of conſtant work. It being now become a natural food to Hibernian ſtomachs, and an antiſcorbutic, it conſequently frees them, in a great meaſure, from that conſuming diſorder; but when too much uſed, or principally ſo, as is the practice in that country, I am apprehenſive it promotes dyſenteries, defluxions, and all phlegmatic diſorders, to which, though generally a thin *lean* people, they are much ſubject; and in this it is aſſiſted by the natural moiſture of the climate, occaſioned by its vicinity to the great Weſtern, or Atlantic ocean; and not ſo much to the bogs, and marſhy grounds, as is the vulgar erroneous opinion. It may well agree with the opulent, becauſe it is capable of many palatable, culinary improvements. IR.

† The Iriſh cabins, or huts, are in the weſtern parts continually involved in ſmoke; thoſe in the counties immediately about

exquiſitely beautiful ones of them, reſcued every year from the certain deſtruction of the ſmoke, and bad provender.

Theſe

about Dublin are not ſo much ſo, being ſomewhat better conſtructed. The ſmoke muſt be very deſtructive to the ſkin. I made my obſervation on ſeveral of both ſexes, and different ages, who reſided conſtantly in my neighbourhood in huts; and I found the alteration in hue, and cutaneous freſhneſs and ſmoothneſs evident, even in thoſe aged from twenty-five to forty. Some of them looked as ſhrivelled, parched-up, and worn, as if they had been ſixty. Add to this the ſmoking of tobacco, which is univerſal amongſt them, and a great drier: they are nevertheleſs very ſubject to defluxions of all kinds. This phyſical cauſe it is that ſpoils the external look of half the country wenches of the kingdom, the pungent quality of the ſmoke acting more powerfully on the ſofter and more delicate texture of their ſkin; whereas the men are not ſo ſoon affected by it, from the coarſer grain of theirs. Beſides, the conſtant exerciſe which puſhes out the groſſer humours, and not being ſo much in doors, as the females, ſaves them a while longer from the pernicious effects of it. The poor are the more careleſs about the conſtruction of their cabins, which cauſes this eternal cloud of ſmoke, on account of an evil cuſtom much prevailing. When a poor man comes to live with a gentleman farmer, or other renter of land, he commonly brings what he calls his houſe along with him. This houſe is no more than a few miſerable ſticks of very ſlight girthing, which ſerve for the roof: any deficiency, neceſſity obliges him to ſupply from the next neighbour's grove. It happens, perhaps, ſoon after, in the courſe of ſublunary events, that he gets warning from his maſter to quit his ſervice (the uſual times are in November and May): the poor fellow deſires his houſe may be let with him; but this requeſt is generally denied, for no other reaſon, that I know of, but to let the houſe tumble down on the premiſes. The maſters, indeed, retain them to put others into them; but the poor are ſometimes ſuperſtitious in this reſpect, and rather build themſelves a new cabin than ſucceed their neighbour in a dry ſeaſoned one. From hence we may eaſily perceive why the ſmoke happens to be ſo detrimental to the poorer natives. 'Tis certain, were they ſure to remain (and none of them are ſure of any term except they have leaſes) but ſix months in a place, they ought, by a proper conſtruction of their cabin, to ward off the ſmoke for that time, which they might do at a moſt trifling expence; but their being in a ſtate almoſt like the wandering Arabs,

Theſe children, that look thus healthily, are fed by the fond parents, for about the firſt ten years, with the beſt the cabin can afford: if there be a little milk, butter, oaten bread, pulſe, or meat, a good part falls to their ſhare; but when they become more adult, they muſt ſhare in the chance of the potatoes, ſalt, and cool ſpring, as before mentioned. From this ſhort ſketch, which is a true one, but not near ſo full as the ſubject would admit, though not the limits of a letter, we may eaſily perceive the great benefit of the potato to Ireland; that it is not leſs wanted there, than well cultivated; it ſeeming in a manner to have been created for that climate, in which it thrives ſo remarkably well; and in which branch of agriculture the natives are ſo ſuperiorly ſkilful.—Let us now proceed to their methods of cultivating it.

There are ſeveral ways of breeding potatoes in Ireland, which partly ariſe from the difference in ſoil, and kinds of ſeed. The different ſoils for this purpoſe in uſe in my neighbourhood, for about twenty years paſt, and which, I believe, are pretty general, are the following, wherein they are abundantly propagated, *viz.*

Firſt, On rich clay land without any manure, vulgarly called graſs potatoes.

When a leaſe is near being expired, that is, during the laſt ſeven years of it, if there be no covenants grounded on the ſtatute againſt waſte, *&c.* the tenant, finding no hopes of a renewal, ſets conſiderable tracts in this way, where the ſoil will admit of it.

Secondly, On good ley land well gravelled, (otherwiſe ſanded) which ought to be done a year before planting. But the

cauſes in them great inattention in this reſpect. I have hinted this to many of them, and prevailed on ſeveral to become more orderly and neat in their dwelling; obſerving to them, that if they happen to have a few pounds of butter for ſale in autumn, they can ſcarcely ſell it on account of the ſmoky taſte, which is intolerable. IR.

the poorer ſort, who are the chief cultivators of this root, are obliged to ſand and plant at the ſame time, or nearly thereabouts; which is very deſtructive to themſelves, their potatoes not having the proper benefit of the manure; at leaſt one part in three of the return are on this account exceeding ſmall, and are from hence called *poreens* by them, being a diminutive expreſſion. Whole fields are ſet in this way*, (commonly called *ſpaddane*, as I noticed in a former letter) in which a conſiderable trade is driven; eſpecially in the provinces of *Munſter* and *Connaught*.

Had it been properly and moderately done, it would be a fine preparation for the encreaſe of corn, and the laying down and bringing in, or, in other terms, the reclaiming of land; but the poor do it ſo negligently, and mangle it ſo intolerably, having but a ſhort temporary uſe in it, beſides paying near double the worth for it, that this manufacture, which might otherwiſe be of conſiderable benefit to Ireland, is, as now carried on, rather the contrary; both which I may have occaſion hereafter toprove in ſome future letters to you.

Thirdly, On ground previouſly gravelled (that is, perhaps ſix months before) and dunged at ſetting time. There is but little done in this way, except by the gentry, and renters of land for their private uſe; it being as yet out of reach of the peaſantry, unleſs in a few inſtances.

Fourthly, On the ley with dung alone. Marle is not in uſe in my neighbourhood, though there is plenty of it in ſeveral parts of it; therefore cannot yet inform you how it would do for the potatoes in that diſtrict. As to potatoes ſet in the ley with dung alone, this manufacture alſo is done, as you may judge, moſtly by the more opulent. I have, however, often ſeen large fields ſet in this way to the public; but it is not of late years ſo much the cuſtom, this ſort of land being commonly kept for grazing: this hurts the land; and any preparation out of the ley for potatoes will, if not previouſly *gravelled*.

Fifthly, In arable or ſtubble land (vulgarly called *ſticking or thruſting of potatoes*, becauſe they are ſown with a ſtick, pointed

* See Number II. p. 8.

pointed at the end, about an inch diameter and two feet long, with the *loy* * (otherwiſe the Iriſh ſpade) as I will more fully explain in the ſequel.) In this method dung is alſo uſed, which ſhall be noticed *in loco*.

Theſe are the moſt general methods that now occur to me, or I believe that are in uſe. There are, however, ſome others ariſing from the quality of the ſeed, practiſed only by the curious, in which the plants are put down at nine or twelve inches aſunder every way, in little hillocks, (like the hop plant) as practiſed in ſeveral counties here in England; and, if you land them at certain proper ſtated times while vegetation continues, you will have a handſome neſt of large oblong potatoes at every landing.

I made the experiment of one ſort in my garden; and out of half a dozen potatoes cut into ſeveral pieces, each having an eye, I had, to the beſt of my remembrance, without exaggeration,

* The iron part of the *loy*, or Iriſh ſpade, is not quite half ſo broad at the edge as the Engliſh garden ſpade: it is about a foot or ſixteen inches long, gently decreaſing to about one third of it from the edge, and the ſame way encreaſing to the top, where (being lapped about two inches over along the back or undermoſt ſides) it forms a ſort of conical ſocket, in which it receives the tree, always made of aſh, which fills it up and riſes wider about three or four inches higher than the iron: here the handle riſes from the left ſide (ſo as to admit the foot entirely on the right ſide) to about three foot and a half high, without any eye on top, as on the Engliſh ſpades. With this inſtrument they dexterouſly perforate that, in general, ſtiff, or gravelly ſoil, which with the broad-edged ſpade they never could do to any profit in the common way of labour, the ground being much more compact than in England, not ſo open or inclined to a loam: theſe loys are in uſe with them near 2000 years. Their *ſlanes* or ſpades for cutting turf fire, or bog fuel, are of the ſame form, except that on the left or off corner of the edge iſſues out ſtraight a piece of iron, like the cock of a garden dial, the baſe of which, being welded to the ſides of the *ſlane*, and edged underneath, enables the labourer to ſhape his turf in an inſtant, and throw it up on the bank, where there is commonly a little boy or girl to receive it: this I have ſeen them do with great dexterity from the bottom of a bog-hole near fifteen feet deep; but they frequently ſink much deeper. I cannot think but both theſe inſtruments would be very uſeful in many parts of England, eſpecially where the ſpirit of improvement hath encouragers. IR.

aggeration, a quantity nearly equal to twelve Winchester buſhels.

This kind of potato is introduced into Ireland but of late years: it is however well known there.

A potato entirely black is alſo in uſe in Fingal, near Dublin, fructifies abundantly, and eats exceeding dry, which principally marks the goodneſs of this root in almoſt every inſtance.

As to the deſcription of the potato, its origin, and kinds moſt in uſe, it may not be amiſs to treat a little before I proceed to the cultivation of it.

The potato is a bacciferous herb, with excellent roots, bearing winged leaves, a belled flower, and ſundry dark-green apples * about the ſize of children's marbles. It is of the *ſiſer* or *ſiſarum* kind; and moſt naturaliſts imagine it to be the *ſiſarum Peruvianum*, or ſkirrets of *Peru*, and thought to be long in uſe among the Spaniards, Italians, Indians, and ſeveral other nations.

It is probable the jeſuiſtical dynaſty, by virtue of their abſolute power in the fine country of *Paraguay*, have greatly improved its cultivation in that remarkably benign and fertile climate.

It was firſt brought into *Ireland*, about the beginning of the ſeventeenth century, by the unfortunate Sir *Walter Raleigh*, (who introduced tobacco much about the ſame time) and planted in the county of *Cork*. The firſt trial the inhabitants made of them, was on the apples, which they boiled and eat; but theſe not agreeing with the ſtomach, they made the happy experiment on the root, which ever ſince hath proved ſo beneficial to that kingdom.

There

* 'Tis ſaid the potato apple makes a good pickle, and ſome have tried them for ſeed; but I fancy, if they anſwered in this manner, the Iriſh would not be ignorant of it at this day; for ſuch an eaſy reſource would be very agreeable to their indigence. There have been ſeveral curious experiments made on the culture of this root; but as I write to inſtruct, and not merely to amuſe, I think it better not to ſwell this letter with them, referring your readers, who chuſe ſuch information, to the various books on agriculture. IR.

There are ſeveral kinds of them. Mr. *Maxwell*, of *Arkland* in *Scotland*, a very judicious gentleman, has particularly noticed ſix ſorts, viz. The *long red*, the *round red*; the *long white*, the *round white*, or Spaniſh potato; the *blue*, the *leather-coat*, and an early kind that comes in a month ſooner than the common ſort, though planted at the ſame time.

This root being greatly manufactured in Ireland, they mix moſt of the better ſorts promiſcuouſly, both for uſe and ſeed.

I remember, about twenty-five years ago, the large red potato *, then called the *Caſtonian*, (perhaps from *Caſtile*,) as alſo the oblong Spaniſh white potato, to be chiefly in uſe; but now a leſſer ſort, ſuch as the *Munſter* or kidney potato, of a whitiſh or lightiſh yellow colour, the leather-coat, or round red *Cronian* potato, with a rough thick ſkin, and particularly that ſtiled the Spaniſh white potato, are moſtly in uſe.

All theſe ſorts are cut for ſeed, according to the number of eyes on them, and thrive generally well with very little care; ſo that all ſorts being now ſo plenty, and anſwering ſo well, there are (as we may eaſily judge) no over nice diſtinctions made about them there †. The poorer Iriſh, who

* This potato is now much cultivated about London, the gentry in particular being very fond it. Perhaps they think it makes a figure on their table, on account of its colour: as to its taſte, it does not exceed the pale-yellow potato, which is by many thought to be a ſweeter root. N.

† As to the manner of preſerving potatoes in the winter againſt froſt and hogs, their two greateſt enemies, they are often conſidered of ſuch little value in Ireland, eſpecially in plentiful years, that the peaſants bury them in holes dug in common fields, on which they lay a thick covering of earth well preſſed down; and if the ſeaſon proves froſty, they lay on ſtraw, rotten hay, or litter. They are beſt preſerved in very dry places, kept as much as poſſible from the air by a thick covering of dry earth, (but fine ſand is better) and over all dry ſtraw, haulm, litter or hay. In brick vaults, almoſt without theſe precautions, they are preſerved effectually, but more ſurely with them. Some put them into pits with layers of ſtraw, &c. between. This though under the open air, may do; but it would be beſt done by the rich in an out-office, and by the poor in a corner of their

who affect not to plant this root in bottom lands, or wet ſwampy grounds, unleſs hard preſſed for ſoil, are even in this caſe ſeldom attentive about the kind of potato they put down, the return being commonly wet, unfit for eating, and only proper for ſeed, which (from my little experience) I think makes but indifferent, though ſown in the beſt prepared upland; for too much moiſture, as well as too much dung, makes a potato wet: and plant it when you will, I am apprehenſive it never loſes this quality, which is the worſt it can have, except being rotten, or froſt-bit: nor will any eat ſo well, raiſed from dung, as without.

As the potato thrives in different ſoils, ſo there are different methods of cultivating it: I will therefore now proceed to that moſt generally in uſe in my neighbourhood, (and indeed all over the kingdom) called *graſs potatoes* or *ſpuddane*, and by ſome (improperly) *con-acres* *, which

their cabin. Theſe often put them on hurdles nearly over the fire, ſo that the continual ſmoke that ſurrounds them becomes a good preſervative, and makes them eat dry and mealy, their two chief excellencies. The farmers pile them up in one of their offices, with an outſide facing of bog turf well *ſaved*; but they are oftentimes negligent in not having them covered, on top, with fine dry ſand, or earth, ſtraw, &c. by which neglect the froſt eaſily gets at them, and penetrates deep into the heap, beſides ſpoiling all the outſide ones: ſome lay on horſe dung, but it may hurt their vegetative quality: ſome, who are overtaken by the froſt, before they dig, (though ſometimes this work is done in ſuch weather, but improperly) cover their beds well with litter, &c. which I have obſerved to preſerve a good part, but ſeldom the whole. They ſhould by no means be ever waſhed, except previous to domeſtic uſe; nor ought the ſkin to be pared off, as is done with the turnep; (both which errors I find are much practiſed in and about London) for by waſhing away the finer particles of earth from their pores, they not only ſhrivel and decay ſooner in a mild ſeaſon, but admit the rotting influence of the froſt in a ſevere one: alſo, when they are pared before boiling, the water affects the meal or core, in ſuch a manner, that they ſeldom eat ſo dry and mealy as they otherwiſe would, which is the peculiar excellence of this root. Ir.

* Con-acres rather conſiſt of ſtubble-land, ſet in ſmall diviſions to the poor. This is commonly appropriated to oats, and is called oat-ſoil. It is almoſt as difficult to get in the rent of it, as that of *ſpuddane* land. Some ſtricter landlords detain the produce

ſeems to be the natural culture, but doubtleſs not ſo good to make the land ſtand long proof, (notwithſtanding the graveling) as if artificial manures were added, ſuch as dung, compoſt, lime, *&c.* for marle, lime-ſtone, gravel, ſea-ſand, ſhells, *&c.* I conſider in the claſs of natural manures and the beſt; and providence hath kindly given them in every ſpot, (even in the unpromiſing deſerts of *Zara*, &c.) had we known how to come at them.

Land in the ley, (as I ſaid before) and that which requires no manure, the Iriſh ſeek moſt greedily after; ſome of which has not been plowed perhaps within this century: ſo that you can only juſt diſtinguiſh that it has been tilled, and the tilth generally curved, the old people inclining the plow with the caſual ſhape of the field, ſo as to let the water in the furrow have a drip or fall.

When a peaſant has the good luck to get a bit of ſuch choice ground, (for two or three of them will be concerned in an acre, and few take more than one) he follows the old ridge with his *loy*, or Iriſh ſpade, unleſs compelled by the poſſeſſor of the land to make his ridges ſtraight, which he moſt unwillingly does, and at beſt but aukwardly, with a rope made of hay or ſtraw, or ſome of his wife's worſt tow; neither of which ſtretching right, and often breaking, ſeldom admit well-looking ridges: theſe he makes from one end of his ground to the other, the beds being about three, or at moſt four feet wide, and the furrows, or trenches, about two *. When he depoſits the ſeed on his bed,

produce on the premiſes till paid, and many of the poor leave it on their hands, which obliges them to take it home at great loſs; yet they afterwards ſue for the rent by proceſs or civil bill at the aſſizes, (which is a great practice, and very beneficial for the Iriſh circuiting attorneys) and eaſily obtain the decree of the court; but notwithſtanding, they do not always recover the damages. IR.

* The Iriſh, if they poſſibly can avoid it, do not plant their potatoes acroſs the old ridges, which undoubtedly would be beſt for the landlord, the earth being thereby better mixed, and brought to an evener ſurface *in futuro*. Having only a ſhort temporary uſe in it, (being ſeldom allowed three crops, rather commonly but one) they think planting along the old ridge the

bed, at about four or ſix inches at moſt aſunder, he divides the turf of his furrow in two equal parts, which he turns alternately in ſods on the edge or verge of each bed, the green ſide on the potatoes, cutting the ſods on three ſides or angles, leaving that next the bed uncut. This laborious work the poor fellow does ſurprizingly quick: two more men follow him, one digging the under ſtratum, and throwing up on the middle of the bed as much of the earth as he conveniently can with his *loy*: the remainder the third man caſts on with his ſhovel, ſettling the bed in the form, or manner, in which it is to remain *.

Some cover their potatoes at firſt (through want of time) with only the ſod, and about four or five inches of earth, and finiſh them perhaps, that is, caſt the laſt covering on them, not for a month, or ſix weeks after; which poſſibly may greatly check their growth. Many account this the beſt way, and it is become common; but I attribute the neglect of not finiſhing their potatoes, (as the term is) in due time, to no want of proper knowledge in the common

the moſt profitable huſbandry, which is an erroneous notion, for many phyſical reaſons needleſs to enumerate; ſo that the plantations generally look very ill to the eye: add to this, that they are unſolicitous about the breadth of the ridges always adhering to that of the old; and even, if there happen to be no ſigns remaining of the old tillage, they are ſtill prone to theſe defects in method, juſt before obſerved. Ir.

* The Iriſh, when they conveniently can, cover in their potatoes all at once; but when leiſure, or rather liberty, does not permit, (which is too often the caſe) they cover them at firſt about four or five inches deep, and where they begin to appear, give them a ſecond covering, nearly like the firſt, which moſt commonly finiſhes the planting: ſome few indeed do them over very lightly a third time; but this muſt be done with circumſpection. The common Iriſh are better naturaliſts than one would imagine: though they cannot be eaſily got out of their old aukward unprofitable cuſtoms, they nevertheleſs are very intelligent in what belongs to their potatoes, corn and cattle: they know by frequent coverings, that the weeds are prevented from robbing the potatoes of the ſubſtance of the dung and earth, as is alſo the potato ſtalk, by being thus choked till the oot becomes of a ſize to draw ſufficient nouriſhment in ſpite of

. They are ſcarcely hurt by any weeds, except the *thiſtle* or ock, and theſe they are careful to cut away. Ir.

Iriſh, but their inability to give the proper attention to their own little affairs, occaſioned by the greedy ſeverity of their maſters, as before obſerved.

Others there are (and many) who, making the furrows unproportionably narrow to the beds, throw up a third ſpit or ſtratum, and perhaps not until two months after the firſt ſetting.

This pernicious method may poſſibly deſtroy, or check the weeds; but certain I am, it will not contribute to the encreaſe or largeneſs of the root, in the unphyſical or over heavy manner in which I have ſeen it done; becauſe this lower ſtratum, which is moſtly ſand, remains on the top of the richeſt part of the ſoil, and being thus unmixed with it, prevents it from receiving the proper benefits of the air, *&c.* beſides, too great a covering on the potato is highly prejudicial to it.

In other caſes, theſe ſtratums thrown up, and mixed into a good tilth, would anſwer wonderfully, mixing well, being the life of good tillage. I would therefore in this place recommend to our farmers (who are too penurious of their land) to make their potato trenches ſo wide, as not to require throwing up much of the third or ſandy ſtratum on the laſt covering, or landing, of their potatoes *; and they will find a much greater return, and one half (or more) leſs of *poreens*, or ſmall potatoes; which is an object highly worthy of their notice. The experiments I have made, I purpoſe repeating on my return to Ireland, and hope to prove this ſimple method to exceed that in the hillock, or in the drill way.

In this manner all ley land is ſown with potatoes by the common people, and moſt others, whether manured or not. If dunged, the dung is laid out as the ridges are to be, but the ſand is ſpread all over the ſurface. Commonly little boys and girls precede the ſetters on the ridges, laying down the ſeedlings or potato eyes, which they do very quick

* The reaſon why the poor Iriſh are ſo ſparing of their land as not to allow width enough to the intervals, is very evident; they pay ſometimes four times as much rent as the land is worth, giving not uncommonly five pounds an acre for it. N. A.

quick, and tolerably well, at the appointed diſtance. This ſeems a giddy part of the buſineſs, and well ſuited to their years; but cuſtom makes them perfect in it *.

The next general method is planting potatoes in ſtubble-ground, which is, in the common way above mentioned, by dunging it well, and ſometimes by plowing it in, and then ſhovelling up the ridges, a man going before, lightly digging them, that there may be a ſufficient quantity of mold to cover them; but this the poorer ſort cannot well compaſs to do, and always avoid it when they can get a freſh or ley ſurface.

Nor do they ſow them to chuſe, the ſecond year, in the ſame ground, without dung or ſome other artificial manure, (for the natural, ſuch as ſand, marle, *&c.* would not do) unleſs it be exceeding good.

Lime indeed in this caſe would very probably anſwer, but it is rarely tried.

There is alſo a cuſtom a good deal in uſe, which is by ſticking or thruſting potatoes in ſtubble land freſh plowed, which is done in this manner: a man (but ſeldom two) goes on the crown of a narrow plowed ſet, and ſticks his *loy*, or *Iriſh ſpade*, in it, every here and there, with his right foot, holding it in his left hand, and with it puſhing the ſpade once, and ſometimes twice from him, to make an opening, (which I have ſeen done with a good deal of dexterity) and with the right hand, that contains the ſeed, (a convenient quantity of which he carries in an apron, or cloth, tied round his middle,

* The poor always give help *gratis*, in that country, to their landlord, at potato ſetting and digging time, ſo that it is not unuſual to ſee forty or fifty, and perhaps more men at once in a gentleman's cloſe, planting or digging his potatoes, the gentry having generally plantations conſiſting of from one to half a dozen acres, for the uſe of their houſes, and for ſeed. In digging time the poor make very free (like the ſmugglers) with their neighbours horſes, carrying home, ſometimes to a conſiderable diſtance, their potatoes on them bare backed in over heavy quantities, ſeldom ſparing the poor animals on this occaſion, by which means they do much damage. This work is always done in the night, and what with the great depth (as about me) of ſome of the bye roads, and the over-loading, the horſes ſeldom eſcape being hurt in ſome ſhape or other. IR.

middle, ſo as to let the contents be eaſily come at) he throws one, and oftentimes two ſets, or eyes, into the opening which the loy makes behind; and on his drawing it away, the looſened earth falls in and covers them *. Soon after

* It may ſeem ſurprizing that the Iriſh, who drive on the potato culture ſo extenſively, are oftentimes very remiſs in the preparation of the ſeed. They uſe promiſcuouſly all ſorts for this purpoſe, except the poreens or ſmaller ones, and even ſome of them in caſe of want, which otherwiſe ſeem deſigned for the ſwine. They indeed prepare the ſeed properly enough, cutting them out into as many little pieces as there appear eyes: in the larger ones there is an inner piece remaining, that can have none; this is caſt away: the leſſer ſort are cut in two or three pieces, according to the number of eyes; and few are planted whole, unleſs through inadvertency or neceſſity. Thus far they are right; but my objection is this: it is a common and an erroneous practice to keep the ſeed a month or more cut, and piled up in an open room previous to ſetting-time. The dry, and oftentimes froſty winds of March and April, operating on the ſides of the cuttings, ſo ſhrivel them up, and ſtop the pores, that when they come to be put into the ground, the proper and inſtant vegetative participation cannot take place till the moiſture of the earth re-opens the pores, ſo as to admit ſuch vegetative communication: this may take up ſome time, according to the mildneſs or ſeverity of the ſeaſon; and numbers of the cuttings may be ſo withered, as to be paſt benefiting of it: hence it follows that the progreſs of the vegetation may be retarded or driven into the winter months, and of courſe ſoon ſtopped (the earth being then as it were locked up); conſequently this root will loſe greatly of the ſize it otherwiſe would acquire. I know ſome of the Iriſh affect to ſay the large potato is not the beſt in taſte, or for uſe; that the middle-ſized are preferable; but I believe all the more judicious part of the world will allow, that where the large ſort can be obtained equally as dry as the other, a plentiful return of them, which may be had only from the ſame culture that the ſmaller require, will be infinitely preferable. I believe all England can teſtify that the larger ſort, when not planted in wet grounds, are as dry and as well taſted as any others: I have moſt commonly met with them ſo here, and likewiſe in Ireland, where the ſoil is not leſs fitting for them. In moſt parts of France, indeed, they are in the general rather ſmaller than the third ſize, and eat all the year round as our's do when they are firſt brought to market.—The foregoing hints, which I make bold from my own ſlender experience to give, relative to the care neceſſary in the preparation of

after he dungs the ridges, and covers them up, as in the preceding method, with mold out of the furrows.

Sometimes alſo they do this work with a ſtick about eighteen inches long, and an inch or ſo diameter, pointed at one end, and ſomewhat curved at the other. By this eaſy means huſband, wife, children, and ſervants, (if they have any) and a friendly neighbour or two, (who may be helped in return) aſſiſt at it for greater expedition, eſpecially when the ſeaſon happens to be advanced.

In Scotland they do this work ſomewhat differently.

In Ireland alſo there are many, who ſow potatoes after the plow, the plowman letting the ſets drop in as he goes along; and a harrow matched to the ſame plow, following him cloſe behind, covers them in. There is no great difficulty in this, the land being in tilth. Over all they put dung; but they ſhould mind to give it a light covering, that the ſubſtance of it might impregnate with the adjacent earth, which it would not do, but evaporate by being left expoſed to the air, *&c.* yet this precaution many are very negligent in.

The other methods, as in the drill, or hillock, or horſe-hoeing way, *&c.* are little uſed there, except among the more curious; but they being well known in England, 'tis needleſs to mention them in this place.

The next thing requiſite is the fencing, which ſhould be done, at fartheſt, before the ſtalk begins to appear; for, if the cattle, that are in that ſeaſon greedy for freſh vegetables, get

of potato ſeed, will I hope be attended to, and found uſeful. Let me alſo obſerve, if it happens your ſeed is longer cut than you intend it ſhould be, take a ſufficient quantity of the juice of any ſort of common or different dungs or compoſt about your houſe (which you may eaſily collect on a wet day); ſteep it in it for about forty-eight hours, or longer if you will, only taking care to let your cuttings thus remain in this lye till you are juſt going to plant them. If you can collect ſufficient quantities of the oozings of your dung-beds, near the beds themſelves, it will do equally as well as taking the trouble of carrying it to one of your out-houſes, and putting it into veſſels. But *cave fures.* IR.

get at them, the roots of ſuch as they nip will never come to the ſize they otherwiſe would.

This is well known in Ireland; and yet the poor, chiefly I believe from inability, and partly from a ſort of careleſsneſs, or rather lazineſs, they ſtill inherit (notwithſtanding the mixture of Engliſh and Norman blood, *&c.*) from their Spaniſh anceſtors, are very remiſs in this reſpect; eſpecially in the chiltern, or more fertile parts of the country; where, in moſt matters of huſbandry, they leave too much to chance, relying on the bounty of the ſoil.

About me, and in many other parts, they very commonly do not put on the firſt covering till about the middle of May; and the ſecond, perhaps, not for a month after; ſo that it is often July before they fence them properly: and where many of them are concerned in a plantation (as is uſually the way) it is moſt troubleſome and difficult to get each man to do his part of the ditching, which commonly is but a ſorry mound of ſods, with ſome buſhes ſodded down on top, to keep out ſheep, that ſmell this plant when it riſes, (as cattle do corn) and are very dexterous in getting at it.

Some of theſe poor people are ſo heedleſs, they never can be brought to make their fences; and then the owner of the ground, in his own defence, is obliged to get it done at an advanced price, and they to pay for it, or their potatoes to remain.

Many of them, eſpecially in cheap years, leave them on the landlord's hands; and, unleſs a farmer collects himſelf, or has a good ſervant to do it, the rent is not had without immenſe trouble, and ſome of it never. Notwithſtanding theſe difficulties, many farmers have made eaſy fortunes in this way.

Thus it happens, at the time they are often finiſhing the fencing, they ought to be weeding their potatoes. The weed that moſtly annoys them is the Scotch thiſtle: this ſhould be cut away in June, and if the ſoil ſhould be ſo rich as to require a ſecond weeding, (which is very often the caſe)

ſt ſhould be done in Auguſt. There will be no other trouble with them till digging-time.

The beſt time for this work is in the latter end of October, or beginning of November, to avoid the early froſts, which are mortal to them: but if, by bad huſbandry, they have been planted late, they ſhould be left longer in the ground, and covered with litter, or haulm, to prevent being loſt in this way.

About Michaelmas the cattle are let through them, the roots not being then affected by the nipping, or beating down, of the ſtalk: this the peaſants know by the colour of it, which becomes a dark-brown, loſing its verdure; as alſo by the apple and root.

The more needy begin to dig them for uſe in Auguſt, though they are not then near ſo long in ground as they are in England; which demonſtrates the excellence and ſtrength of the Iriſh ſoil.

When gentlemen-farmers dig their potatoes, they ſet on a great number of hands at once, two to a ridge: boys and girls gather them promiſcuouſly, big and little, into bags containing about two Wincheſter buſhels; and thus they are carried to the farm-houſe, and thrown into a room, in one heap, part of which is deſtroyed by the froſt, a great part by the kitchen, alſo by the hogs, who deſtroy them much while in ground, there being hardly any fencing againſt them; a great part are alſo ſtole by the followers, or hangers-on; and the remainder rarely ſuffices for ſeed, of ſo little value is this eſtimable root conſidered in thoſe parts: and yet I have often known them at a very high price, from ten to twenty ſhillings, and upwards, the *big barrel*, which is the uſual meaſure in the weſtern parts of Ireland; that is, above two barrels, or eight buſhels, *Wincheſter* meaſure.

Had they ſuch places as *Covent-Garden* near them, the caſe would be far different: but where there are no convenient and briſk markets, the waſte in farms is always great.

Though, as I remarked before, low or ſwampy grounds don't anſwer well for potatoes, yet they ſometimes thrive, and are large, the meat being generally ſcabby, cloſe, wet and heavy, from the too great impregnation of the water, which renders them unpalatable, and not the beſt for ſeed; however, ſuch are chiefly uſed in this way*: yet I have ſeen them planted in red bogs, which are the wetteſt and worſt; and the bog being previouſly ſanded and dunged, the ſtalk looked green and healthy, and ſome of the roots might perchance have eat dry; but thoſe planted in black, or dryer bogs, have been found to ſucceed well.

'Tis ſo with the hop-plant: I am confident it would thrive extremely well in moſt bogs; and I believe the experiment has been tried to advantage in Scotland, and alſo in Ireland.

There is no culture perhaps, yet known, will better reclaim waſte and unprofitable lands, than that of the potato. Ireland can well prove the truth of this aſſertion in a numberleſs variety of inſtances.

I have ſeen ſeveral tracts of woodland ſtubbed up, and brought into fine tilth, by means of the potato huſbandry. America, I believe, can ſay the ſame†.

Of

* The Iriſh are, in general, little ſolicitous about the change of their ſeed potatoes. How many ſhoots, or ſtalks, an eye, or ſet, puts out, cannot, I believe, be well determined; no more than whether all the ſets take place: but to one ſtalk generally hang, by ſmall, long fibres, cluſters of potatoes (ſoil and ſeaſon being favourable) big and little. The growths always proceed from the part of the cutting in which is the eye, ſo that it is uſeleſs to plant any pieces that have them not; and the Iriſh ſometimes (too much taken up with babling to each other) cut them, as it were, mechanically; that is, without looking at the potato, or obſerving where the eye is; by which means they cut the eye acroſs, more or leſs, and thereby ſpoil the vegetation of much ſeed, to the great detriment of their employers. Such cuttings may emit ſtalks, but ſeldom potatoes; or if they perchance do, they are ſeldom other than *poreens*; that is, the ſmaller ſort of all. IR.

† The plain reaſon, why potatoes are an excellent crop for reclaiming land, is, on account of their requiring ſo much tillage; by which the ſoil is ſure to be thoroughly reduced, and brought into good tilth. N.

Of late years the hard-hearted ſky-farmers, that is, the inferior ſort, and even ſome of our gentleman-farmers (I bluſh to have it to ſay, on account of the honour of poor Ireland; but the truth is always beſt told, as it may be of uſe) drive the poor into the mountains, moory grounds, wooded and ſtony lands, and even into the bogs; and when, by the culture of the potato principally, they have reclaimed them, ſo as to be fit to admit cattle, they are turned out without ceremony*. I have in ſuch places ſeen as fine crops of potatoes, and afterwards flax, and different kinds of corn, as ever I met with any where.

The mountain, and other ſurfaces, except bog, ſeldom fail being bleſſed by nature with lime-ſtone, gravel, (which is the commoneſt) or ſome other manure, adapted to them; ſo that it is nothing but hands, money, and a proper limitation of the grazing-farming, that are wanting to make almoſt the whole kingdom look like a garden, or like England; I need go no higher with the compariſon.

It is true, in ſome few counties of Ireland, in particular diſtricts, Nature either has not been ſo bountiful, or the farmers have not found out the internal manures; being obliged to carry ſea-ſand, and other ſorts, many miles; in which however they find their account, notwithſtanding the, impolitically, too-much-limited trade of the kingdom.

Before I diſmiſs this ſubject it may be proper to obſerve, that a ſecond crop of potatoes is ſometimes taken out of the ſame land ſucceſſively; but this is not common, at leaſt about me, though the land I believe is as good as any in the province. On the contrary, the uſual way is, after the

* I have known conſiderable villages of them, in a thriving condition, ſet adrift all at once, to make room for ſheep and other cattle. This is downright barbarity; and much of it ariſes from a deſtructive cuſtom prevailing in that country, where one man takes, without ceremony, the farm of another underhand: theſe are not to blame, but the greedy head-landlord, who, like a Jew, lets to him who will give the moſt. Such, often not diſtinguiſhing the ſolidity of tenants, and eager for high rents, are very juſtly chouſed out of the whole, and glad to let again to the old tenant on more moderate terms. Ir.

firſt crop of potatoes is taken off, if the ſoil is ſtrong, they immediately ſow bere in it (of which perhaps I may have occaſion hereafter to write to you*) or keep it till the following ſpring for flax, which requires an equally ſtrong ſoil: or, if the ground be but of a middling good ſort, they ſow it, juſt after the potatoes are taken out, with wheat; or keep it till the April following for barley.

The ſky-farmer generally takes the land into his own hands after the firſt crop of potatoes, and ſows it with bere, wheat, or barley, for two or three ſeaſons; after which, if he refreſhes it with a ſummer, or a winter fallow, he ſows the ſaid kinds of grain in it for two or three ſeaſons more; then he takes two or three crops of oats; and when it is well impoveriſhed, or drawn, (as they call it there) he lets it for ſeveral years together, in con-acres, to the poor people, for at leaſt one third more than the real value.

From hence we may judge how much an alteration of method in huſbandry is wanting in thoſe parts.

Whenever the influence of Britain can reach there *properly*, 'tis to be hoped all bad methods and cuſtoms will be removed.—Or, there rather appears greater hopes from the moſt patriotic, and never-to-be-too-much-commended endeavours of the *Dublin ſociety*†; who, to their immortal honour, have in a manner, with reſpect to agriculture, firſt awakened all Europe into a liking for this much-neglected ſcience.

There is every ſublunary good to be expected, by poor *Ireland*, from the diſintereſted and indefatigable labours of that generous ſociety: for after all, as to England, I fancy ſhe has as much as ſhe can well do, to take the *proper* care of herſelf; and, if I am not miſtaken, before the year *ſeventy*

* Whenever Mr. Irwin will pleaſe to favour us with an account of the culture of *bere* in Ireland, it will be eſteemed a great favour. N.

† The Dublin ſociety is indeed the mother of all the other ſocieties of agriculture in Europe, being firſt eſtabliſhed, and ſetting before the world the patriotic example.—Theſe ſocieties are now greatly multiplied, particularly in France, where there are ſeveral eſtabliſhed in almoſt every province. N.

ſeventy is expired, ſhe may find it neceſſary to call once more on that her younger ſiſter for aſſiſtance; who (and perhaps not very long ago) hath been of no inconſiderable help to her in the grievous day of blood and danger.

Indeed if that people be bleſſed with v——ys ſuch as they *approve*, with men of honour, who ſcorn to preſide there in the leading-ſtrings of a m——r,(mind, Gentlemen, I name no body, and to flatter any I mean not) then, indeed, a poor Iriſhman may rejoice in the reaſonable expectation of being ſoon enabled to eat his potato with a little better ſeaſoning than ſalt, and to dance at the door of his landlord with a greater ſpirit of independence than he can now. But I would never have this independence arrive at *licenciouſneſs*, or the ſhaking off the neceſſary degrees of order and ſubjection.

Thus, Gentlemen, I have ventured, from experimental knowledge, to trouble you with the foregoing account of the potato, which is the material part of what I juſt now recollect; deſiring, if it ſhould ſeem to you in any ſort ſerviceable to the public, to give it a place in your *Muſeum Ruſticum*, which I think by much the moſt uſeful of any monthly collection publiſhed in England. On my return to *Ireland*, any farther inlights I may find myſelf enabled to give you, in this, or any other matter relative to agriculture, I chearfully will, as I think all lovers of their country, and indeed of human-kind in general, ought to encourage your laudable undertaking. This, however, I deſire not to do with the leaſt view of acquiring fooliſh tranſitory fame. I leave that to my ſuperiors.

You'll pardon the length of this letter, becauſe the ſubject is moſt intereſting, badly as I may have handled it.

All the plea I urge in arreſt of critical judgment is, that I wrote it from a recollection *only* of my own little experience and obſervation; which I flatter myſelf will be found pretty near the letter of truth. I am,

GENTLEMEN,

London, Your moſt obedient ſervant,

Jan. 10, 1764. JOHN IRWIN.

NUMBER LXXXIV.

A Letter to the Editors, on the Benefit of Salt for deſtroying Worms in Horſes, Dogs, &c.

GENTLEMEN,

APproving of your ſcheme, as far as I can judge of it from your own account of it in your Addreſs to the Public, and the two firſt Numbers; and encouraged by the ſenſe your correſpondent, who ſtiles himſelf *Agriculturæ Amator*, N°. XIX. p. 97. has of it; I take the liberty to communicate to you an obſervation or two on that letter, the writer of which will not (I hope) take any thing amiſs I ſhall ſay with reſpect to the *rationale* of it, ſince I ſhall myſelf offer a conjecture on the ſubject of his letter; and therefore, dealing with him as I would myſelf be dealt with by others, may preſume he will not; but am previouſly to declare it as my firm opinion, that your ſcheme, as well as any other, which is calculated for practical uſes, will be beſt anſwered by a proper communication of facts firſt; and then, if you pleaſe, may be added any philoſophical reaſonings on, to account for, them, having more than once or twice (who, though an old man, never troubled the world much with writing, nor ſhall long trouble it with myſelf) obſerved, that very probable and very ingenious hypotheſes have proved very uſeleſs and inſignificant in practice.

I remember once a project was communicated to me, which, if it had anſwered in practice as well as it looked in theory, would have been beneficial to ſome people in moſt places; when, being young and ſanguine in my expectations, I determined to try it; but the nearer I was to its completion, the more doubt I had of its ſucceſs, like ſome lawyers when the trial is fixed to come on, or alchymiſts juſt before the time of projection, who never till then ſhewed the leaſt diffidence; and it happened to me, as it often does to

the former, and always to the latter, that I had ſpun my thread too fine to be of any ſervice.

But to the point———

Your correſpondent recommends ſalt to make horſes and black cattle thrive, from an obſervation that they manifeſtly thrive in ſalt marſhes; and I agree with him, that it is found ſo, and with very few exceptions.

He then, ſignifying he had not met with any good reaſon aſſigned for it, offers the ſea-air, as whetting their appetites, for one; but, though I know it has often that effect on men, and allow it may have on beaſts, yet it is not owing ſolely to that, ſince ſalt-marſhes at a great diſtance from the ſea, ſuch as is that of one near Nantwich in Cheſhire, has the ſame effect; and I have known horſes ſent there ſurfeited, and as lean as poſſible, in a month's time look as well, and be grown as plump, as ever they were before.

The next way given to account for their thriving is very modeſtly in a query, Whether it may not be owing to the particles with which the earth, and its produce, near the ſea, is impregnated? And here I likewiſe join with him, if the fact be, as he ſays, and of which I have no doubt, that beaſts grow fatter in ſuch lands than others; though I do not abſolutely agree with the note annexed, that, though cattle, who drink plentifully, do thrive apace, they do therefore thrive, becauſe they are by ſuch vegetables made drowthy; but that ſuch vegetables do both create an appetite, or rather, with my reaſons below for it, firſt take off their diſinclination to eat, and alſo give them a ſtrong one to drink more than uſual.

As to the third way, which is propoſed in the ſame decent manner as the ſecond, I am inclined to think with the annotator, for the reaſon given in the note under p. 98, dews not being found ſo impregnated in the hotteſt climates, though ſaline particles are often raiſed in what is called the ſpray of the ſea, and carried to a conſiderable diſtance.

And now to offer my own ſurmiſe, allowing of that of your correſpondent, *viz.* its carrying off foul humours, and of his reaſon why it does not continue purging, to which laſt

may

may be added that it has not the ſame effect to ſo great a degree but by its meeting with ſuch humours to work with, as well as on, I am inclined to think that many of the diſorders of cattle, and their conſequential poverty of fleſh, are owing to worms, againſt which I have often given ſalt to my horſes and dogs with good effect, and have ſeen worms and their ſkins and filth voided by the former many a time after their being well doſed with ſalt.

I am credibly informed it has long been a cuſtom in one part (*Provence*) of *France*, to give ſalt, by thruſting a handful down their throats once a week, to horſes and cattle at graſs, with a view of fattening them, and preſerving them from diſorders; and that ſheep, and goats too, a little uſed to it, will lick it off the ground.

On the whole, I am ſatisfied that ſalt will diſturb and deſtroy worms, which probably hinder cattle often from thriving, and take off their ſtomachs to food; but whether they are the cauſe of thoſe diſorders in cattle for which ſalt-marſhes are found a cure, and ſo then they thrive, when the worms are removed away; or whether, as has been aſſerted, moſt diſorders of the ſtomach and bowels are owing to worms, I will not preſume to ſay: but ſurely, if a lean beaſt, who otherwiſe ſeems healthy, or a diſordered one, has worms, the deſtroying them will be adviſeable, when it may be done ſo eaſily, and their thriving afterwards may the more reaſonably be expected.

As I offer what I have ſaid as one way of accounting for the good effect of ſalt-marſhes on conjecture only, ſupported by the proof I have of ſalt being deſtructive of worms; ſo ſhall I be glad to have it confuted, and ready to embrace a better, but more than either (as one plain matter of fact is preferable to a thouſand of the moſt refined reaſonings, for general uſe, and ſuch only can be of any to the generality of mankind) to have it confirmed, that ſalt will cure the ill effects of clover, *&c.* when cattle are firſt turned into it, as many farmers have ſuffered by it in my neighbourhood, who am, wiſhing ſucceſs to your undertaking,

Dec. 20. 1763. Your humble ſervant, A. J.

NUMBER LXXXV.

A Letter to the Editors, particularizing ſeveral Tokens of Coals being on an Eſtate.

GENTLEMEN,

ON peruſing the letter, No. XXXV. in the *Muſeum Ruſticum*, &c. reſpecting the moſt probable method to know if coals be on an eſtate, it particularly ſeemed to draw my attention, becauſe enquiries of this nature will, I am very apprehenſive, become every year more neceſſary, as many parts of this iſland are almoſt deſtitute of that, without which we cannot ſubſiſt; I mean fuel for fire. And many other parts, from which thoſe were once ſupplied with wood for fuel, have now very little to ſpare; for which cauſe, not only our large cities and principal towns, but alſo great part of the inhabitants in country places, muſt be ſupplied with ſomething as a ſubſtitute; as turf, peat, or coals.

From the firſt no great ſupply can be expected, except to thoſe who reſide near ſuch barren ſandy heaths where *petty-whin*, *heather*, and *ſhort furze*, plentifully grow: from the ſecond, 'tis true, ſomething may be expected, as large quantities thereof may be had in many counties; but as an unpleaſant ſmell accompanies the burning it, 'tis not likely there will be any more of it uſed for culinary uſes than what bare neceſſity obliges: ſo that it may juſtly be concluded, coals will ever remain that kind of fuel for which there will be the greateſt demand; the conſequence of which may be reaſonably ſuppoſed an encreaſe of its price, unleſs greater ſupplies can be diſcovered than what at preſent are known.

Theſe conſiderations have frequently induced me to wiſh, for the ſake of the middle and loweſt rank of people, that more frequent trials might be made after this valuable mineral; and as I live in the neighbourhood of many collieries, I have, as opportunity and leiſure would permit, made fre-

quent enquiries and obſervations on the moſt probable ſigns on the ſurface where this is to be expected underneath; ſome of which I now propoſe to communicate, as, perhaps, from theſe hints an enquiry of this nature may be carried further by perſons better qualified for ſuch undertakings.

One general, and, I think it may be ſaid, certain ſign is, iron ore; for where-ever this is to be met with, coal is near.

But, the better to guide, it may not be amiſs to fix ſome certain, and eaſy-to-be-known *ſign*, on or near the ſurface, as a ſtandard by which to direct the ſearch; inaſmuch as the earth is compoſed of ſeveral *ſtrata*, conſiſting of different kinds of earth and ſtones, all which have a *fall* or *dip* to ſome point between *the north and ſouth eaſtward*, their ſeveral ſections appearing on the ſurface in the oppoſite points, and is by miners, at leaſt thoſe who dig coal, called *the crop of the veins*.

This being premiſed, I would propoſe the ſtratum of *free-ſtone*, or what may be better known by the name *Bath-ſtone*, for the ſtandard, as being the eaſieſt to be diſcovered on the ſurface; laying it down as a certain maxim (at leaſt it has appeared no other to me) that not any coals are to be met with to the *ſouth or ſouth-eaſt* of the ſection of this *ſtratum**; but muſt be looked for, if any ſucceſs be expected, on the oppoſite ſide, between the *north and ſouth-weſtward*.

The ſection of the *ſtratum*, which appears next on this ſide, is a kind of *ſandy rock*, in which large ſtones of harder conſiſtence lie interſperſed: next unto this frequently appears a ſection of the *white lyas-ſtone*, but not in every place, it being in ſome places loſt in another ſtratum, conſiſting of very hard *lime-ſtone*, and a kind of *grey iron flinty ſtone* intermixed, which lieth on a ſtratum of *marl* of various colours, but moſtly *red*, *brown*, *and blue*, in veins.

The

* According to the beſt obſervation I have been capable of making, this ſtratum has its courſe through England nearly in a line N. E. by N. and S. W. by S. This I apprehend to be its bearing, though allowance muſt be made for projecting of promontories, and the inequality of the ſurface, by which means 'tis in ſome places thrown in oppoſite directions, but in a few miles reſumes its natural courſe. *This note came with the letter.*

The next ſection is *clay*, the colour frequently varying, but is moſtly of that of *yellow ocre*, inclining to an orange; under which is the ſtratum of *penant-rock*, in which are frequently met with *veins of iron*, anſwering the character of that metal in every reſpect, except ductibility; and very frequently do appear, in the quarries of the ſtone of this ſtratum, lumps of *pure coal* in ſolid pieces of this ſtone; and ſometimes *thin veins of coal* between the ſtrata of ſtone in this ſtratum.

Next unto this, and often intermixed with it, is the ſection of the ſtratum which contains the coal, and is what the miners call the *crop of the vein*, and is diſcovered by the ground being *ſpringy*, and ſubject to *green moſs*; amongſt which water frequently ſtands in little puddles, the bottom and ſides of which are generally covered with *yellowiſh ſlime*, reſembling *ſulphur* in appearance; and if the ſurface of the ground be ſo ſituated as that the water may drain off, the courſe, or channel, in which it runs, is uſually of the like colour, and even the ſtones are tinged therewith.

But though I have called this a ſtratum, or one layer, yet it is made up of ſeveral ſtrata, conſiſting of *coal*, of *dun*, which is an imperfect coal, *earth*, and *ſtony ſubſtance*; each being of various thickneſs, ſo that the ſections of the ſtrata of coals are often a conſiderable diſtance from each other: but the *pits*, or *ſhafts*, by which the coal is brought to land, are moſtly made in or near the ſection of the ſtratum of *clay*; ſometimes in that of *marl*, and ſometimes in the *penant*, but in neither of theſe two very often; and in ſinking down through theſe, that is, the *clay* and *penant*, there is frequently found in the clay very hard *lyas*, or *ſaints-head ſtones*; and in the ſtratum of *penant* its hardneſs, which appears at its ſection, is generally become ſoft, and, when expoſed to the air and wet, ſubject to fall to pieces.

To enlarge further would exceed perhaps due bounds, and take up the place of ſome more uſeful obſervations, in the monthly publication for which this is deſigned, ſhould it be admitted to a place therein; therefore ſhall conclude with ſaying I greatly approve the plan, and wiſh the deſired ſucceſs

may attend; propoſing to communicate (according as leiſure will permit) ſuch ſentiments, founded on obſervation, or plain matters of fact, as I apprehend may be of public utility*.

RURICOLA GLOCESTRIS.

Dec. 24, 1763. L.

* We are greatly obliged to this gentleman for his favour: by continuing his correſpondence he will add to the obligation. N. R. T. O.

NUMBER LXXXVI.

A Letter to the Editors, rectifying a Miſtake in the Piece marked No. LIV. *reſpecting the Coleſeed Plant.*

GENTLEMEN,

IN the letter I ſent you, dated Nov. 3. (No. LIV.) on the culture of coleſeed, your printer has miſtaken a word, owing perhaps to the badneſs of my writing.

Pray let this be rectified. In p. 238, lines 13 and 37, for *colewort* read *coleſeed plant*, and the ſame in p. 239, lines 6 and 16. This may perhaps not be thought of much conſequence by ſome of your readers; yet the proper diſtinction ſhould be preſerved.

The coleſeed plant is the *napus ſylveſtris*, C. B. and differs from the colewort, though both of them are of the cabbage kind.

The coleſeed plant has by ſome been thought to be of the ſame ſpecies with the *napus ſativa, radice alba*, C. B. or the French turnep; but this is a miſtake, they being eſſentially different.

The ſeed of this plant is ſometimes apt to fail; therefore, as it is cheap, I would recommend it to the farmer to ſow it thick enough, as the ſuperfluous plants may eaſily be cut up by the hoe: I only mention this as I think I omitted it in my laſt. I am,

GENTLEMEN,

Witham, Eſſex, Your humble ſervant,

Jan. 4, 1764. S. T.

NUMBER LXXXVII.

A Letter from C. W. *Eſq**; *Member of the* Society of Arts, &c. *to the Editors, propoſing the Eſtabliſhing Societies of Agriculture in the ſeveral Counties of* England.

GENTLEMEN,

AS every method tending to promote agriculture muſt fall under your plan, I take the liberty of troubling you on a ſcheme I have long had in my thoughts, and which I ſee briefly touched upon in your collection, in a piece marked No. LXIII. of eſtabliſhing *ſocieties for the improvement of agriculture* in every county of England; for which purpoſe your publications will be of infinite utility: but the good ariſing from them will be the giving premiums for each particular ſpecies, as may be moſt ſuitable to the ſoil and ſituation of that county.

I remember ſuch a one to have been ſet on foot by ſome very public-ſpirited gentlemen in Wales, and I dare ſay great improvement accrued from it.

When ſuch things are conſidered in their extended view, they will be found to be univerſally beneficial, either by making rivers, roads, producing particular ſpecies of grain moſt called for in that place, and for planting timber, where it might turn out to the beſt advantage.

Theſe are circumſtances rather beyond the ſcope of *the ſociety of arts*, &c. in London, and are ſuch peculiar articles as can never be ſo well known or encouraged as by the inhabitants: not that it is ſuppoſed to raiſe a fund equal to the above purpoſes, but to afford proportionable allowances to perſons to ſet about works which muſt eventually turn out to their own advantage, who would not have thought of trying experiments

* To this gentleman the editors are indebted for the piece marked No. I. they have a high ſenſe of the obligation, and would eſteem any future communications as a ſingular favour confered, as well on the public as themſelves. The Kentiſh method of cultivating hops would be particularly acceptable from ſo able a hand.

experiments without ſome pecuniary encouragement to repay in part their firſt works; and by each county-ſociety communicating their remarks through the channel of your *Muſeum Ruſticum*, other counties would at the ſame time receive information of what is doing in each.

It is manifeſt that promoting the natural advantage which every county has, muſt tend to the good of the whole kingdom; and it will have a particular conveniency of opening material correſpondences between the different parts of this nation, and ſetting forth to public view the local advantages of each place, ſince the encouragement for the growth of oak timber ſhould be in maritime counties, or near navigable rivers, as the carriage from other parts would eat up the value.

In this manner every thing would find its true and proper ſituation.

I obſerve lately in the news-papers an article from Paris, which mentions that ſeveral ſuch ſocieties are eſtabliſhed in the different provinces of France; and ſurely it may be eaſily done in each county of England.

A moderate ſubſcription of one or two guineas would annually raiſe a competent ſum to do a great deal of good, and the ſubſcribers would receive a ten-fold profit in the improvement of their eſtates; added thereto the pleaſure of contributing to the beauty of the place where each gentleman reſides.

As to a method of proceeding, there cannot be a better than the plan of the London ſociety and their books of premiums, fully ſenſible that the members would be very ready to communicate any information or knowledge to form ſocieties ſo contributory to their own inſtitution.

The firſt thing to be conſidered by the gentlemen at their meeting, is what may be beſt adapted to the particular ſituation of their county, and afterwards ſuch articles as are not ſufficiently cultivated; for which purpoſe premiums will be offered by them, and in due time the certificates of the ſeveral claimants examined into and adjuſted: after which the gentlemen will undoubtedly ſend an account of their proceedings

proceedings to be publiſhed in your *Muſeum Ruſticum*, and another copy to the ſociety in London to be by them regiſtered.

I dare ſay I have ſufficiently explained my idea, and hope ſome active gentleman, of which I am convinced there are many in every county, will eſtabliſh ſuch a ſociety, and by cuſtom and practice others would naturally follow; and the inſtructive converſation which ſuch meetings would produce, will be an additional plea in favour of them.

I am,

Jan. 16, 1764. Your conſtant reader,

C. W.

NUMBER LXXXVIII.

Letters concerning the former Tranſactions of the Society for the Encouragement of Arts, Manufactures and Commerce; particularly in relation to the Premiums for A Method of preventing the Deſtruction of Turneps by the Fly;—A Compoſition for Marking Sheep without Injury to the Wool;—*and* A Preparation for taking Rats alive. *Containing ſeveral uſeful Obſervations and Hints reſpecting thoſe important Subjects.*

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

THE three following letters are at your ſervice, if you chuſe to give them a place in your *Muſeum Ruſticum*. The one of them is an enquiry, made by myſelf, about the former tranſactions of the *Society for the Encouragement of Arts, Manufactures and Commerce*, with reſpect to three intereſting ſubjects: the other is the anſwer of the gentleman to whom I applied on this account, and whom I conceived to be able to give me thoſe lights I wanted, by his having been particularly attentive to matters of this kind, and a conſtant frequenter of the ſociety's meetings and committees.

I give you the whole as they are, rather than to try to abridge them, and extract the principal matter, as the epiſtolary form is, perhaps, more agreeable, as well as intelligible, to the generality of your readers, than a more brief and formal manner of treating ſubjects of this kind.

I am, your unknown humble ſervant,

Y. W.

To Mr. ——, *in* London.

SIR,

AS you have been ſo good as to promiſe to give me, from time to time, an account of any of the matters that fall under the conſideration of the *Society for the Encouragement of Arts, Manufactures and Commerce*, I may be deſirous to enquire after, I will take the liberty, at preſent, of begging to know what was the reſult of three premiums offered ſome years ago: the firſt, for *A method of deſtroying the fly in turneps*; the ſecond, for *A compoſition for marking ſheep without injuring the wool, as is now done by the uſe of pitch*; the third, for *A preparation for taking rats alive.* Theſe were articles very well worth the notice of the ſociety; and I am a little perplexed to account why, at the ſame time the advertiſements of the ſeveral premiums for them were dropt, nothing was communicated to the public as being deemed effectual; ſince, I ſhould imagine, ſuch momentous premiums would not be diſcontinued without the end had been, in ſome degree, obtained. If, therefore, the leaſt uſeful information was brought to light, by your proceedings, with regard to any of theſe articles, I ſhould be greatly obliged to you for imparting it to me; eſpecially as to the preventing the deſtruction of young turneps by the fly, ſince any remedy, even a palliative one, for that evil, would be of the greateſt ſervice in my neighbourhood. I ſhall conſequently eſteem any ſatisfaction you can give me on this ſubject, as a favour, and remain,

SIR,

Oct. 6, 1763. Your obliged humble ſervant,

Y. W.

To

To Y. W.

SIR,

I Shall be ever ready to give you all the information I am able, in relation to ſuch articles as come before our ſociety, or any other where I can in the leaſt gratify your curioſity, or be of ſervice to thoſe for whoſe ſakes you make ſuch enquiries.

As to an effectual method *of preventing the deſtruction of turneps by the fly*, it is very true, the ſociety did ſome years ago offer a premium; and though I was not a member when the advertiſements on that head were firſt ſettled and publiſhed, yet I attended the committees which took under conſideration, the laſt year of publiſhing ſuch advertiſements, the ſeveral methods offered in claim of the premium (for ſeveral there were); and which came to a reſolution, that none of theſe, ſo offered, appeared likely to be effectual. This failure in the ſucceſs of the advertiſements, which, as far as I remember, had been repeated ſeveral years; and a notion, which was then very juſtly ſtarted, of the difficulty of deciding on the merits of any propoſed methods, that appeared to promiſe any efficacy, if ſuch ſhould be offered, without going through a ſet of experiments which could not be made by the ſociety, nor even under their inſpection; determined the committee to recommend alſo the diſcontinuance of the advertiſements for this premium, and occaſioned thoſe circumſtances, which, according to your letter, ſeem to you a paradox: and I am, indeed, of opinion myſelf, that, notwithſtanding the importance of the object, they were very right in their conduct as to this point; and that there was a far greater chance of their drawing themſelves into perplexities and embarraſſments, than doing any good as to the thing propoſed.

But though I cannot offer you any thing much worthy your notice, taken from the communications made to the ſociety, in claim of their premium for *a method of preventing the deſtruction of turneps by the fly*; yet I have a memorandum of one imparted to me, at that time, by a perſon of fortune, and good ſenſe, who attended the com-

mittees that ſat on this ſubject; which was vouched to me, by him, to have been found, on repeated trials, to anſwer extremely well for this purpoſe. I ſhall therefore moſt willingly communicate the ſame to you, as a matter, I think, greatly deſerving a further examination and trial; as well on account of the authority of the perſon who obliged me with it, as from the great plauſibility of the principle on which it is founded; there being, I think, no other principle that ſeems to promiſe any practicable means of fully effecting this very deſirable matter.

The explanation of the method may, I think, with ſome little ſtudy, be eaſily obtained by a perſon of your ſagacity and knowledge; but to ſave you that trouble, I will give you my own ſentiments on it: only, before I enter on this, it will be proper to preſent you with the method itſelf, as it was imparted to me.

"A quantity of turnep-ſeed, of the laſt year, muſt "be taken, together with an equal proportion of ſome of "the produce of the year preceding that: each of theſe "quantities muſt be divided into two equal parts, or halves, "which may be then mixed together. One of theſe two "parcels, or mixtures of the two halves, muſt be *ſoaked in* "*water* for twenty-four hours; and then the other, re- "maining unſoaked, being again mixed with this which has "been ſoaked, the whole muſt be ſown in the manner com- "monly practiſed. It muſt be obſerved, however, that the "whole quantity of ſeed uſed ſhould be double to, or at leaſt "one third more than is commonly uſed. The conſe- "quence will be, that the herb will riſe from the ſeed, ſo "treated and ſown, at ſeveral different times; and the fly "will deſtroy one part of it, but there will be enough left to "afford a full crop."

The principle, on which the effect of preſerving the tender herb of the turneps from the fly depends, conſiſts in two circumſtances: the one of theſe circumſtances is, that ſeed, which is of the ſame year, will ſpring out of the ground ſome days ſooner than that which is of a former year; and that ſuch ſeed, as has been ſoaked for a conſiderable time in

water,

water, will riſe ſooner than ſuch as has not undergone ſuch ſoaking. The other of theſe circumſtances is, that the fly will not deſtroy the herb of the turnep after it has attained a certain degree of growth, or ſtrength; and that the youngeſt and tendereſt herb will be preferred by it to that which is older, even to ſuch a degree, that the one will be quitted and left for the other, when found near it.

Now it is very eaſy to apply this in accounting for the efficacy of the method above propoſed; for the herb produced by that ſeed of the ſame year, which has been ſoaked, riſes ſome days before any of the reſt, and the fly falls upon and deſtroys a part of it; but the other part of the ſoaked ſeed, that is to ſay, that of the former year, then riſing, the fly quits the firſt before it has deſtroyed the whole, and preys on this only. In like manner, before it has devoured the whole of this ſecond riſing, a third tempts it away, that is to ſay, the unſoaked part of the ſeed of the ſame year; and, before this is conſumed, the fourth part of the ſeed, to wit, the unſoaked part of that of the former year, in like manner prevents a total deſtruction of the other. While this laſt, which affords a more pleaſing repaſt than any of the reſt can now do to the fly, takes it off from them, they gain a ſufficient ſtrength and growth to reſiſt the miſchief, when it would otherwiſe demoliſh them after having diſpatched the laſt: and thus, by diverting, as it were, the enemy, by taking him off to new attacks, a ſufficient quantity of the plants eſcape, and are ſaved from deſtruction, to ſupply a full crop when grown to due maturity *.

* This method promiſes very well in ſpeculation; but we wiſh it may anſwer as well in the practice. Is it certain that the ſoaked ſeed of the former year will come up before the unſoaked ſeed of the laſt year? or, as there are in their natural ſtate ſeveral days difference in the time of their appearance, will not ſoaking the oldeſt ſeed bring them nearly upon a par? The principle, however, on which this practice is recommended, is undoubtedly good: we would therefore recommend it to our readers, to make the experiment, and communicate to us the reſult.

I cannot vouch the ſucceſs of this method, as I obſerved before, from any actual trials; but it is certainly very ingenious, and ſeems ſo juſt in the principle, that I can ſcarcely doubt the efficacy of it: and I ſhould therefore recommend it to your notice, eſpecially as it is of ſo ſimple a nature, as to require very little trouble or expence. At leaſt, it promiſes greatly more than any of the ſeveral methods laid, by the candidates for the premiums, before the ſociety; which were either credulous practices of ſoaking the ſeed in compoſitions, that had no relation to the end in view; or ſuch methods as, though perhaps ſerviceable in ſome circumſtances in a ſmall degree, were yet very inadequate and uncertain, and, if not very cautiouſly managed, might do more harm than good. Amongſt theſe the ſtrewing of lime and aſhes, ſo as to convey a ſmall proportion of the duſt of them over the tender plants, or the burning ſubſtances that afford an acrid ſmoke to the windward of the ground where the turneps grow, were the principal. In the uſe of lime and aſhes, care muſt be taken to ſpread them very thin over the young herb: otherwiſe they would corrode it, and be as ſure a means of deſtruction, as the fly itſelf: but if a very fine duſt only be conveyed over it, this will not be the caſe; and if no heavy rain fall to waſh the duſt off, this practice will ſometimes ſucceed very well *. The ſubſtances employed for burning, to raiſe a ſmoke for deſtroying the fly, have been uſually either green wood, or weeds dried to a proper degree, or brimſtone. The laſt is moſt effectual; but it is difficult to diffuſe it over a large ſpace of ground with ſufficient ſtrength to anſwer the end: and care muſt be taken not to augment it too much, in any particular place, leſt the herb of the turnep itſelf ſuffer from it; which may eaſily happen while it is in this tender ſtate: the expence, moreover, of

* The ſtrewing of coal-ſoot over a piece of young turneps, has, by experience, been found to be of great efficacy, as it not only renders the young plant diſagreeable to the fly by its bitter taſte, but alſo greatly helps the vegetation by its enriching qualities. N.

of this is ſome objection, the quantity of brimſtone neceſſary to produce any material effect being conſiderable. The method I have particularly explained above, ſeems therefore to promiſe much more than can be expected from either of theſe, and will, I hope, afford the means of preventing this great miſchief attending the cultivation of turneps.

I will now endeavour to give you ſome ſatisfaction as to the ſecond article you aſk after, *viz.* the premium *for a compoſition for marking ſheep without injuring the wool, as is now done by the uſe of pitch.* This premium, Sir, is not finally diſcontinued by the ſociety, but only a further publication of the advertiſement ſuſpended, on account of a claim at preſent undecided. The proceedings they have had with regard to this matter were as follows. The ſociety was induced to offer a premium for a *compoſition for marking ſheep*, becauſe *pitch*, which is now uſed on account of its cheapneſs, the facility of its being laid on the wool, and its durability as a mark, is not to be again cleanſed out of the wool, by waſhing with hot water and ſoap, nor by any of the methods uſed in cleanſing wool; and conſequently ſpoils not only the wool of the part where the marks are made, but alſo that of any other parts which come in contact with it when the pitch is ſoftened by heat. This occaſions the deſtruction, as is ſaid, of an eighth of the whole of the wool of thoſe ſheep that are marked with it; the loſs of which to the public has been, on the moſt moderate computation, deemed 40,000*l.* annually; and by ſome, a much greater, even up to 200,000*l.* This renders the matter a very conſiderable object with reſpect to the public intereſt, and a very fit one of the ſociety's premiums; becauſe there can be no doubt, but that a compoſition of cheap ſubſtances may be found out, which will have the properties required for this purpoſe; that is to ſay, be a durable mark, and yet waſh out with hot water and ſoap: and if the ſociety ſhould, by their encouragement, occaſion ſuch a diſcovery, it is preſumed farmers, and other proprietors of ſheep, would rea-

dily uſe it; and it might probably be the means of a legal prohibition of the marking with pitch, which has not hitherto taken place in conſequence of applications that have been made on that account; becauſe nothing was at preſent known that would ſupply its place for marking; and the want of durable marks would produce ſuch perplexities and trouble to thoſe who are owners of great numbers of ſheep.

However trivial, therefore, a premium for improvement in ſheep-marking may ſeem at firſt view, to thoſe who are not appriſed of theſe circumſtances, it was certainly one of the moſt judicious and momentous premiums the ſociety ever offered, though it has not hitherto had the deſired ſucceſs. The premium offered at firſt, for ſome time, by the ſociety, was, I think, only ten pounds; but it has ſince been advanced to fifty; which is yet much too ſmall; and probably this is the reaſon why it has not been effectual. There have been, however, ſeveral candidates for each year it has been offered; all of which, excepting one, of which I ſhall give a more particular account below, have been rejected on trial. The means of trial, originally adopted by the committee to which this matter was referred, were, firſt to examine if wool could be cleanſed perfectly from the marking ſubſtance, when laid on it, by waſhing it in hot water and ſoap; and if the compoſition appeared to anſwer well in this point, a ſkin with the wool on it was marked, and hung out in the air, expoſed to the weather and the agitations of the wind, to try the durability of the mark. The compoſitions produced by the firſt ſets of candidates all failed in one of theſe two points, and were conſequently rejected; but the laſt year the premium was offered, ſome gentlemen, who were members, were not ſatisfied with this kind of trial, but obtained an order, that proof ſhould be actually made of each compoſition, on the backs of living ſheep ranging at large. On the reference of the compoſitions in claim of this laſt-advertiſed premium, the committee, therefore, again proceeded to try the waſhing in hot water and ſoap; in which all failed but

one,

one, part of all the ſubſtances always adhering to the wool in ſpite of ſuch waſhing. The one which ſtood this teſt was an earth of the ochrous kind, and therefore differed little from ruddle, and thoſe other chalky ſubſtances that had been formerly employed, but are now diſuſed on their inferiority to pitch with reſpect to the durability of the mark they make: but the committee, finding it ſtand this trial, determined nevertheleſs the further trial on the ſheeps backs the ſociety had ordered; and a conſiderable quantity being procured from the candidate, it was diſtributed among a number of gentlemen to have it uſed on as many ſheep as their reſpective portions of it would mark.

Of the ſucceſs of this proof no regular account has ever been given to the ſociety by any of them; but ſome have occaſionally mentioned in private the failure of it: and as matters poſtponed to diſtant and unfixed times are not taken up again in the committees, unleſs in conſequence of ſomething offered to the ſociety relating to them, or of ſpecial motions of ſome members to revive them, this matter ſleeps at preſent, and poſſibly the renewal of the premium itſelf will be neglected. It were greatly to be wiſhed, however, that ſuch a compoſition were diſcovered, and either laid open to the public, or ſold at a reaſonable rate, by the diſcoverer, to perſons who would again retail it in every part of the country; for as the price of wool depends on the plenty, and we have at preſent ſo great rivals in the woollen trade, the deſtruction of an eighth, or according to ſome, a much greater part of our whole produce, is a great detriment to our national commerce.

I have thus given you, Sir, the beſt information I can, as to two of the three ſubjects you have mentioned to me: the third, that is, the tranſactions of the ſociety with relation to the premium *for a preparation for taking rats alive*, with my own ſentiments on that ſubject, ſhall be the contents of a future letter. I am,

Yours, &c.

To Y. W.

SIR,

HAVING before, in my laſt letter, given you an account of the tranſactions of the ſociety for the encouragement of arts, manufactures, and commerce, together with my own notions, reſpecting the methods for preventing the deſtruction of turneps by the fly, and the compoſitions for marking ſheep without injury to the wool; I will now perform my promiſe of communicating to you what paſſed in the ſociety with reſpect to the premium for *a preparation for taking rats alive*, and my opinions concerning that matter.

The catching of rats may at firſt ſeem a trivial, perhaps even ſomewhat drole, affair for that ſociety to trouble themſelves with, which have always the choice of ſo many articles, in appearance more important: but when it is conſidered, the loſs to the public, by the deſtruction of corn alone, amounts to ſome hundred thouſand pounds a year; beſides that of many other commodities, ſubject to be devoured, or damaged, by them; and the very diſagreeable domeſtic annoyance of theſe noxious creatures where they abound; it will appear a matter of ſerious moment; and it muſt be allowed, that if the offer of the premium had brought to light an effectual remedy to this evil, for the uſe of the public, a ſum of 50 *l.* could not have been better appropriated.

What the ſociety proceeded upon, in the particular means they employed to effectuate the purpoſe of obtaining a method of eaſily deſtroying rats, was this. It is in general believed, and many inſtances vouched in a general way, by perſons of credit, to the ſociety, were offered in proof, that thoſe, who profeſſedly follow the art of rat-catching, have among them a ſecret for preparing ſome ſubſtance or compoſition which will allure all the rats, in or about any building, together to one place; and, in ſome way or other, will intoxicate or faſcinate them ſo that they may be taken by the rat-catcher at pleaſure: and it was therefore concluded,

cluded, that, if this ſecret was laid open to the public, any perſons, whoſe granaries or houſes were infeſted with theſe animals, might eaſily practiſe it, and free themſelves from this miſchief, without the neceſſity of ſeeking for, or employing, profeſſed rat-catchers. This induced many gentlemen, and even ſome perſons of quality, to be very earneſt with the ſociety, to eſtabliſh ſuch a premium: and accordingly fifty pounds was agreed to be offered for *a preparation for taking rats alive*; it being preſumed, that theſe words expreſſed beſt what was conceived to be the means uſed by thoſe rat-catchers who appeared to practiſe their art with moſt ſucceſs.

In conſequence of advertiſing this premium, ſeveral candidates for it offered themſelves, at the ſtated time, to the ſociety: and their reſpective claims were referred to the committee of *chemiſtry*, as being beſt judges of what was underſtood by the word *preparation*; that is, ſome ſubſtance, or compoſition of ſubſtances, which would allure, faſcinate, or intoxicate the rats, ſo that they might be eaſily taken. On examining what was produced in ſupport of the ſeveral claims, it appeared, that all the candidates had ſent traps, or machines, of various forms and conſtructions; except one, who had only ſent a letter deſcribing a method, very far ſhort, even in pretenſions, of what the ſociety had in view. It was, however, a matter of debate, whether improved traps might not be deemed to come within the ſpirit and meaning of the advertiſement, if they appeared to afford effectual means of anſwering this end: but the word *preparation*, together with the reference to the committee of chemiſtry, and not the committee of *mechanics*, who would have been the proper judges of traps as machines, made the intention of the ſociety in the advertiſement ſo evident, that this, together with the too-well-known inſufficiency of traps to free places from them which abound greatly with rats, eaſily cleared up this doubt; and the claims of all the candidates were rejected, as not being conformable either to the ſpirit or letter of the advertiſement. The ill ſucceſs of this offer of this premium, together with

the appearance of reaſon for doubts, I ſhall explain more particularly below: that there was not any known compoſition, or ſubſtance, which would ſo ſimply or eaſily take rats, as had been imagined at the time of ſettling this premium, occaſioned the committee to recommend the diſcontinuance of it to the ſociety, who readily gave their aſſent to that meaſure, as well as to the determination concerning the claims of the candidates.

But, notwithſtanding nothing adequate to what was propoſed in offering the premium was obtained by means of it, yet on the diſcuſſion of this matter, and the examination of the various facts, produced as well by ſome of the candidates, as by gentlemen who attended the committees on this reference, ſeveral very material points of information, reſpecting this matter, aroſe to view; as indeed will be generally the caſe on ſimilar occaſions. It appeared that no ſatisfactory evidence could be produced, of any of the rat-catchers being in poſſeſſion of a ſecret, by which perſons unpractiſed in ſuch matters could eaſily allure, and bring together all, or a very great part, of the rats in or about any place, ſo as to deſtroy them in a ſhort time; but that this was done by the profeſſed rat-catchers themſelves, by the uſe of various arts and means, which they could, in conſequence of a ſkill and dexterity acquired by long practice and experience, put in execution; as fiſhermen and bird-catchers do their methods of taking fiſh or birds: but which arts and means could not, nevertheleſs, be performed or applied, with like advantage, by perſons not habituated to, or familiarly acquainted with them; nor be effectually communicated by verbal inſtruction, or brief deſcription in writing, any more than other arts, or crafts, that are eaſy to thoſe properly trained to them.

It was evident, from the relations of different gentlemen, of what they had ſeen, that the moſt able of the rat-catchers themſelves had different methods from each other, which were yet equally ſucceſsful: and it ſeemed to appear, from ſeveral circumſtances, that ſome of them joined divers unneceſſary proceedings to the eſſential part of their operations,

for

for the ſake of parade, and to hide, by the perplexity of myſtery, the uſeful part of their art.

As thoſe who practiſe rat-catching for their livelihood are not many in number, nor always at hand, and not having conſtant employment, are obliged frequently to ſeek it at a conſiderable diſtance, their pay muſt conſequently be in proportion; and frequently they are not within reach at all where moſt wanted: it would be well for the public, therefore, if ſome labourer, or handicraft-man, in every town or large village, was made tolerably maſter of this art, and would exerciſe it, as he well might, at a lower rate than the profeſſed rat-catchers; as ſuch aſſiſtance would be of great conſequence to numbers of farmers, and others, and check the great encreaſe there is at preſent found of theſe very deſtructive animals; while, at the ſame time, ſuch a man, having ſome other buſineſs to fill the intervals of his not being employed in this, might, at a very moderate price, make it well worth his while.

That you may promote ſomething of this kind in your own neighbourhood, I will give ſome hints of the principal means, by which the rat-catchers are able, in three or four days time, or ſometimes leſs, to clear a houſe, and even the out-buildings, of the greateſt part of the rats frequenting it.

The firſt ſtep taken is, to allure the rats all together to one proper place, before they attempt to deſtroy them; for there is ſuch an inſtinctive caution in theſe animals, accompanied with a ſurpriſing ſagacity in diſcovering any cauſe of danger, that, if any of them be hurt, or purſued, in an unuſual manner, the reſt take the alarm, and become ſo ſhy and wary, that they elude all the devices and ſtratagems of their purſuers for ſome time after. This place, where the rats are to be aſſembled, ſhould be ſome cloſet, or ſmall room, into which all the openings, but one or two, may be ſecured: and this place ſhould be, as near as may be, in the middle of the houſe, or buildings. It is the practice, therefore, to attempt to bring them all together to ſome ſuch place, before any attempt be made to take them; and, even

then, to avoid any violence, hurt, or fright to them, before the whole be in the power of the operator.

The means uſed to allure them to one place are various: one of thoſe moſt eaſily and efficaciouſly practiſed is, the trailing ſome piece of their moſt favourite food, which ſhould be of the kind that has the ſtrongeſt ſcent, ſuch as toaſted cheeſe, or broiled red-herring, from the holes or entrances to their receſſes in every part of the houſe, or contiguous buildings, whence it is intended to allure them. At the extremities, and in different parts of the courſe of this trailed tract, ſmall quantities of meal, or any other kind of their food, ſhould be laid, to bring the greater number into the tracks, and to encourage them to purſue it to the center place, where they are intended to be taken: at that place, where time admits of it, a more plentiful repaſt is laid for them, and the trailing repeated for two or three nights.

Beſides this trailing, and way-baiting, ſome of the moſt expert of the rat-catchers have a ſhorter, and perhaps more effectual, method of bringing them together; which is, the calling them, by making ſuch a kind of whiſtling noiſe as reſembles their own call; and by this means, with the aſſiſtance of the way-baits, they call them out of their holes, and lead them to the repaſt prepared for them at the place deſigned for taking them. But this I apprehend much more difficult to be practiſed than the art of trailing; for the learning the exact notes, or cries, of any kind of beaſts or birds, ſo as to deceive them, is a peculiar talent, which I have ſeldom ſeen attained to in other caſes; though I have known ſome few perſons who could call together a great number of cats: and there is now one man in London, who can bring nightingales, when they are within hearing, about him, and even allure them to perch on his hand, ſo as to be taken.

In the practiſing either of theſe methods, of trailing or calling, great caution muſt be uſed, by the operator, to ſuppreſs and prevent the ſcent of his feet and body from being perceived; which is done by overpowering that ſcent by others of a ſtronger nature. In order to this, the feet are to be co-

vered with cloths rubbed over with aſſa fœtida, or other ſtrong-ſmelling ſubſtances; and even *oil of Rhodium* is ſometimes uſed for this purpoſe, but ſparingly on account of its dearneſs, though it has a very alluring, as well as diſguiſing effect, as will be obſerved below. If this caution of avoiding the ſcent of the operators feet, near the track, and in the place where the rats are propoſed to be collected, be not properly obſerved, it will very much obſtruct the ſucceſs of the attempt to take them; for they are very ſhy of coming where the ſcent of human feet lies very freſh, and intimates, to their ſagacious inſtinct, the preſence of human creatures, whom they naturally dread. To the above-mentioned means of alluring by trailing, way-baiting, and calling, is added another of very material efficacy, which is, the uſe of *oil of Rhodium*, which, like the *marum lyriacum* in the caſe of cats, has a very extraordinary faſcinating power on theſe animals. This oil is extremely dear, and therefore ſparingly uſed. It is exhaled in a ſmall quantity in the place, and at the entrance of it, where the rats are intended to be taken, particularly at the time when they are to be laſt brought together, in order to their deſtruction; and it is uſed alſo, by ſmearing it on the ſurface of ſome of the implements uſed in taking them by the method below deſcribed: and the effect it has in taking off their caution and dread, by the delight they appear to have in it, is very extraordinary.

It is uſual, likewiſe, for the operator to diſguiſe his figure as well as ſcent; which is done by putting on a ſort of gown or cloak, of one colour, that hides the natural form, and makes him appear like a poſt, or ſuch inanimate thing; which habit muſt likewiſe be ſcented as above, to overpower the ſmell of his perſon: and beſides this, he is to avoid all motion, till he has ſecured his point of having all the rats in his power.

When the rats are thus enticed and collected, where time is afforded, and the whole in any houſe and out-buildings are intended to be cleared away, they are ſuffered to regale on what they moſt like, which is ready prepared for them, and then to go away quietly for two or three nights; by

which

which means thoſe, which are not allured the firſt night, are brought afterwards, either by their fellows, or the effects of the trailing, &c. and will not fail to come duly again, if they are not diſturbed or moleſted. But many of the rat-catchers make ſhorter work, and content themſelves with what can be brought together in one night or two; but this is never effectual, unleſs where the building is ſmall and entire, and the rats but few in number.

The means of taking them, when they are brought together, are various. Some entice them into a very large bag, the mouth of which is ſufficiently capacious to cover nearly the whole floor of the place where they are collected: which is done by ſmearing ſome veſſel, placed in the middle of the bag, with oil of Rhodium, and laying in the bag baits of food. This bag, which before lay flat on the ground with the mouth ſpread open, is to be ſuddenly cloſed when the rats are all in it. Others drive, or fright them, by ſlight noiſes or motions, into a bag of a long form, the mouth of which, after all the rats are come in, is drawn up to the opening of the place by which they entered, all other ways of retreat being ſecured. Others, again, intoxicate or poiſon them, by mixing with the repaſt prepared for them, the *coculus Indicus*, or the *nux vomica*. I have ſeen a receipt for this purpoſe, which directed four ounces of the *coculus Indicus*, with twelve ounces of oatmeal, and two ounces of treacle or honey, made into a moiſt paſte with ſtrong-beer; but, if the *nux vomica* be uſed, a much leſs proportion will ſerve than is here given of the coculus. Any ſimilar compoſition of theſe drugs, with that kind of food the rats are moſt fond of, and which has a ſtrong flavour, to hide that of the drugs, will equally well anſwer the end. If, indeed, the *coculus Indicus* be well powdered, and infuſed in the ſtrong beer for ſome time, at leaſt half the quantity here directed will ſerve as well as the quantity before mentioned. When the rats appear to be thoroughly intoxicated with the *coculus*, or ſick with the *nux vomica*, they may be taken with the hand, and put into a bag or cage, the door of the place being

being firſt drawn to, leſt thoſe who have ſtrength and ſenſe remaining eſcape.

By theſe methods, well conducted, a very great part of all the rats in any farm, or other houſe, and the contiguous building, may be taken. But it requires experience and obſervation to perform them well; and there may be circumſtances known to the moſt ſkilful of the rat-catchers, which, if intelligibly communicated, though they would not enable a perſon without practice to manage this affair completely, would yet greatly aſſiſt, and render it more eaſy to be attained. It would, therefore, be an object worthy the attention of the ſociety, to procure the public the moſt perfect information that can be attained; to which end the premium ſhould not be confined, as before, to a preparation for taking rats alive; but offered *for the moſt eaſy and effectual method for taking rats, without the uſe of baited traps in the common way.* The premium ſhould be alſo greater than before; for fifty pounds is not a conſideration for a man to lay open his art, ſo as to ſtir rivals, that may deprive him of part of his buſineſs, or lower his pay. A noble lord, who was before a zealous promoter of this premium, was deſirous laſt year to have advanced a hundred pounds, if the ſociety would have joined another to it, to have made up the ſum of two hundred pounds for this purpoſe; but, from ſome accidental neglect, the propoſal was never publicly made to the ſociety; though it is to be regretted, that this generous intention was not purſued, and ſomething further attempted by the ſociety.

I have now acquitted myſelf of my promiſe, as to the three articles you mentioned to me. If there be any others which you are inquiſitive about, that lie within the reach of my knowledge; on your pointing them out to me, I ſhall be equally ready to impart all I can: and you are at full liberty to communicate all I write to whomſoever you pleaſe.

I am, SIR,

Yours, &c.

NUMBER LXXXIX.

To the Editors of the Muſeum Ruſticum, *reſpecting the raiſing* Ananas.

GENTLEMEN,

IN page 179, Nº. XXXVII. you have publiſhed a letter ſigned J—— C——, dated S——n, June 10, 1763, in which the gentleman ſays, that he finds, by experience, that he can raiſe ananas, or pine-apples, much cheaper and better than they are to be had in the London markets.

As it is impoſſible to direct a letter to the gentleman himſelf, you are deſired to inſert this in ſome future Number of your *Muſeum*; by which that gentleman may underſtand, that if he will be ſo good as to communicate, in your *Muſeum*, his method of raiſing ananas*, he will do a very acceptable ſervice to the public in general, and in particular to, GENTLEMEN,

Your moſt obedient humble ſervant,

Milton, near Abingdon, Berks, JAMES WARNER†.

Jan. 5, 1764.

To Mr. Newbery.

* We could wiſh, for the ſatisfaction of our correſpondent, that we had it in our power to make a perſonal application to Mr. J—— C——; but as he is unknown to us, we muſt be content with inſerting this letter. N.

† If this gentleman will now and then favour us with his ſentiments, it will much oblige us. O.

Muſeum Ruſticum, &c.

For FEBRUARY, 1764.

NUMBER XC.

A Letter to the Editors, from Mr. Thomas, *reſpecting M.* D'Ambourney's *Method of uſing the Madder-Root, green and undried, for the Purpoſes of Dying.*

GENTLEMEN,

I HAVE read, with great attention, the ſeveral pieces you have till now publiſhed in your collection, and cannot but acknowledge to have received great pleaſure in the peruſal of them.

Your correſpondents are a ſet of public-ſpirited men, and I hope theſe their voluntary labours will prove of ſervice to our country.

The widow's mite was not rejected: permit me then to contribute a ſmall ſhare towards the national emolument.

I could not but take particular notice of a piece marked No. XXIX. page 147, being a letter from a member of the ſociety of arts, hinting at a method of extracting and preſerving the colour of the madder-root.

I have ſeveral times reſolved to write to you on the ſubject, but was, till now, by various avocations prevented:

I was, however, lately agreeably ſurpriſed to find that a very ſenſible gentleman, who dates his letter from Manchester, No. LVIII. page 248, has made ſome obſervations on the ſame paſſage in the firſt-mentioned letter, which particularly attracted my notice, *viz. The poſſibility of uſing the madder-root green for dying.*

Your laſt-mentioned correſpondent ſays, he knows of no objections that can be made againſt the uſe of it this way, if our dyers could poſſibly receive it from the hands of the planters in this condition, without any danger of its fermenting and putrefying before it could reach them.

The method hinted at of uſing this root was, I am apt to think, that invented by M. *D'Ambourney*, a gentleman of *Normandy*. I am very glad to have it in my power to lay before your readers his method more at large, as it will probably be a means of removing many objections that would be of courſe raiſed againſt the practice.

It will be neceſſary firſt to premiſe, that this gentleman has made more improvements in the culture of madder, than any man in France beſides; and has convinced his countrymen of the practicability of drying madder, taken up in the ſpring, in the ſun, or by the aſſiſtance of the air, under cover, without the help of a ſtove or kiln.

However, in the courſe of his improvements in the culture of this plant, he found, by experience, that the ſets ſaved from the roots taken up in ſpring, and planted in that ſeaſon, did not take well, the dryneſs of the ſummer preventing their thriving.

This induced him, when he wanted to make a new plantation, to take up in the autumn as many roots as would furniſh him with the number of ſets he wanted; but the ſeaſon at this time not permitting him to dry the roots without fire, it ſtruck his imagination, that the expence of drying might ſtill be ſaved by uſing them green: this thought it was induced him to make the experiment, which ſucceeded to admiration.

The roots were taken up in October. M. D'Ambourney firſt cauſed them to be well waſhed, that no looſe earth might remain hanging about them; and as experience had con-

convinced him that the madder in drying loſes ſeven eighths of its weight, he proportioned his quantity accordingly: in a vat that would require one pound of dried madder in powder, he put eight pounds of green root bruiſed in a mortar: in this he dyed ſome cotton in the uſual way, when he found the liquor ſtill highly charged with colour; the cotton was greatly over dyed, and he was obliged to back-boil * it twice to bring it to the cuſtomary colour.

M. D'Ambourney then tried ſix pounds of the root, and afterwards four pounds, which laſt quantity he found yielded a colour of the ſame ſhade as that produced by a pound of common dry madder in powder.

By uſing madder-root green for dying, half the quantity is ſaved; but this is not all the ſaving.

Firſt, There is no neceſſity for building kilns to dry the root.

Secondly, The danger of over or under drying the root is avoided, both which are a detriment to the colour.

Thirdly, There is not near ſo much waſte in this method as in the other.

Fourthly, The frauds committed in pounding it are avoided, as well as the inconvenience of waiting till the mill is at liberty.

Fifthly, The danger of the root getting damage, or fermenting, after it is pounded, is alſo avoided, which is always the caſe when it is kept too long.

All theſe matters conſidered, M. D'Ambourney thinks we may eſtimate the ſaving at five eighths of the conſumption.

Should this method be brought into uſe, the planter, if he is acquainted with the method, may, himſelf, uſe the root in dying as ſoon as he has taken it up; or he may carry what quantity he thinks proper to market, where

* A practice much uſed among the dyers: it ſignifies boiling the ſtuff after it has been dyed to diſcharge a part of the colour; for which purpoſe they make uſe of ſalt-petre, aqua-fortis, argol, &c. Back-boiling is ſuppoſed to brighten the colour. R.

the dyers will, for their own ſakes, be induced to buy it, as they may either be ſupplied with it freſh and freſh, or buy a quantity at a time, and keep it in a repoſitory in their cellars; M. D'Ambourney having diſcovered, that it will keep a conſiderable time, as I ſhall juſt now particularize, when laid up with proper precautions.

An attention to this matter would, probably, ſoon reduce the price of many of our manufactures, and thereby, of courſe, encreaſe our foreign trade.

But to return to the very ingenious M. D'Ambourney. This gentleman, ever attentive to his country's good, in the latter end of the year 1761, endeavoured to find ſome method of preſerving the madder-root, after it was taken up, without the expence of drying it; accordingly, on the 6th of October, he cauſed a hole, three feet deep, to be dug in his garden, in which he laid thirty madder-plants; and the hole being again filled, he left it expoſed to all weathers.

On the 30th of March, in the following year, this hole was opened, when the roots were all found in good condition. It was again filled, and left till the 15th of September, when the roots, even the runners no bigger than quills, which had been broken and ſeparated from the plants, were as firm and as ſound as when they were firſt depoſited there.

But this ingenious enquirer into nature was not ſatisfied with this firſt ocular demonſtration; he was determined to try whether there might not be in them ſome defect which might eſcape even his curious eye: accordingly he dyed ſome ſtuff with them, and found no difference, in the brightneſs and ſtrength of the colour, from what was dyed with ſome freſh roots he had taken up for the experiment.

I cannot but think this a great acquiſition, both in huſbandry and the art of dying, as the planter may now, if he pleaſes, keep his crop of madder the year round without any danger of its ſpoiling; being attentive, however, to obſerve M. D'Ambourney's method, which is to make, in the trench, alternate layers of roots and earth. He may, by this means, make the moſt of the produce of his lands, and wait till a favourable opportunity offers of making his

market; and not be, as is often the caſe in periſhable commodities, the dupe of the buyer.

The dyer alſo, who is friend enough to himſelf to adopt this method of uſing the green root, may buy this neceſſary ingredient in conſiderable quantities, keeping it in his cellar with alternate layers of ſand, or dry earth.

M. D'Ambourney's method of dying with the green root is as follows. It has already been obſerved, that the dirt is to be waſhed off, and that four pounds of green root are to be uſed where one of Dutch madder would be ſufficient.

The root is then to be chopped moderately ſmall, and bruiſed, either in wooden, marble, or ſtone mortars, (for iron is abſolutely to be excluded, for fear of injuring the colour) till it is reduced to a kind of pulp. It muſt then be thrown into the boiler, when the liquor is ſomewhat more than luke-warm; to put in the root too hot would be hurtful.

The tincture is then to be heated till you can ſcarcely bear your hand in it, at which time the ſtuff is to be put in, which is to be wrought in it for three quarters of an hour, the tincture being kept ſimmering, or juſt upon the boil; after which it is, for the next three quarters of an hour, permitted to boil; when the ſtuff is taken out, and managed as uſual.

I would recommend the above particulars to the attention of your Mancheſter correſpondent, who, living in a town ſo conſiderable for many manufactures, may have an opportunity of making, either by himſelf or friends, the experiment, provided any madder is cultivated in that neighbourhood, of which circumſtance I own myſelf ignorant: I ſhould be glad the above gentleman, I mean the author of the letter marked No. LVIII. would favour your readers with his farther thoughts on the ſubject; it is very intereſting, and frequent diſcuſſions of this point may be productive of ſomething truly uſeful.

I ſhall take up no more of your time at preſent, but conclude myſelf,

GENTLEMEN,

London, Your very humble ſervant,

Jan. 3, 1764. W. THOMAS.

NUM-

NUMBER XCI.

A Letter to the Editors, on the Method of procuring fine Flax.

GENTLEMEN,

I Muſt beg leave to ſet your correſpondent, who ſigns himſelf *A Man of Suſſex*, No. XXXVI. right in one particular, in which I am apt to think he is miſtaken.

In treating of the manner in which they raiſe flax about *Winchelſea*, for the fabricating of cambrics, he ſays, p. 175. that, "in order to promote the growth of the plants, the "planters ſtick the crop very full of long ſticks; and on "theſe they lay buſhes, which, *ſhading the plants from the "intenſe heat of the ſun-beams*, make them run up very "ſlender." I candidly acknowledge I never ſaw flax grow in Suſſex: but as your note tells me it is raiſed in the ſame manner in Ireland, I think I can explain it, having in the north of that kingdom ſeen it raiſed, for fine yarn, in the following manner.

When flax is ſown on rich land very thick, it is apt to be tall and ſlender, and would, without ſupport, be very ſubject to lodge: to prevent this, the planters fix forked ſticks in the ground at regular diſtances, in the forks of which they lay poles, ſo that the plots of flax appear formed into ſquares. Theſe poles ſupport the plants much in the ſame manner I have ſeen rows of onions, planted for ſeed, ſupported by cords.

Your correſpondent above mentioned perhaps wrote his account from information; or if he ſaw the flax growing, he muſt have taken but a curſory view of it.

London, Jan. 2, 1764.

Your's, &c.

HIBERNICUS.

NUM-

NUMBER XCII.

A Letter to the Editors, on the Method of burning Clay, and on the Benefit of it when uſed as a Manure.

GENTLEMEN,

AS you ſeem deſirous of having an account of whatever may be advantageous to the public, I have tranſmitted you one of a manure, which I found very beneficial; which you may either publiſh, or not, as you think proper.

I obſerved our lands, (for I then lived in a wet clay country) after having borne three crops of corn, which is the common method of huſbandry in thoſe parts, produced good quantities of graſs for two or three years; after which the ground began to *ſadden*, and then the produce diminiſhed, and ruſhes grew in abundance.

This led me to think, that whatever would contribute to keep the particles diſunited would be of great ſervice; and, further, I imagined, that clay or ſoil burnt would never re-unite; which proved a fact: moreover, that the ſalt it gained by paſſing through the fire would enrich the land, which appeared from its produce when denſhired *; though I never approved of that huſbandry, as the ſoil was thereby diminiſhed, which is already too thin in that country. This determined me to attempt burning clay, which I did in the manner following.

I cauſed a labourer to dig as much clay as made a number of walls of nine inches high, and of the ſame thickneſs, and the ſame diſtance from each other, in a parallel direction, as would make about a ſquare of three yards: theſe vacancies, being like tunnels of brick-kilns, I filled with bruſh-wood, and on that threw ſome cinders, or ſmall-coal, of which I had ſufficient quantities, then living nigh ſome collieries;

* Denſhiring, or burnbaiting, can very ſeldom be practiſed without injuring land, unleſs the ſoil happens to be very deep, ſo that it may be renewed by deep plowing. R.

lieries; after which I covered the whole ſquare with clay about three inches thick, leaving the ends of the tunnels open, which I then lighted on the windward-ſide: as ſoon as the fire had got ſufficient head, I ſtopt the mouths of them; and when I perceived the covering was almoſt burnt through, I had a ſmall ſprinkling of cinders, or ſmall-coal, thrown on the heap, and then another covering of clay of the ſame thickneſs; and thus I went on till my fire was ſeven or eight feet high.

When I found my fire was very well kindled, which was commonly about the time I put my ſecond coat on, I uſed to enlarge the baſe of the fire, by continuing the tunnels, and by adding new ones to the ſides, (which were filled and covered as the others, and then lighted) till I made my fire about ſeven yards ſquare; for I ſoon found it never burnt well in the middle if it was ſo large at firſt.

Care ſhould be taken the labourer does not put on too thick a coat at once, as it will be apt to ſmother the fire: beſides, by confining the heat in too much, the clay was apt to run and vitrefy, which was then of little uſe.

As ſoon as the heap was ſufficiently cool (for the ſooner it is laid on the land the better) I put about ten large cart-loads on a ſtatute acre, and found it an admirable manure for either meadow, paſture, or corn: for the latter it will not laſt more than three crops, though longer for the two former: and with this I have made prodigious improvements; but I don't believe it will anſwer for a ſandy ſoil, as it will render it ſtill lighter *.

This manure I burnt all times of the year, though ſlower in the winter than ſummer, but always faſteſt in windy weather †.

This

* It is very certain that burnt clay, uſed as a manure, makes land lighter, by diſuniting the particles, before poſſibly too compact; it therefore ſtands to reaſon, that it is not ſo proper for light porous ſoils: this manure alſo warms and invigorates land, raiſing in it a ſlight fermentation, thereby diſpoſing it to part with its vegetative virtues. R.

† There cannot be a better or more ſimple method of burning clay than that uſed by our correſpondent: as ſuch we therefore recommend it to our readers. R.

This, I fancy, may be burnt with bruſh-wood, or furze only; which I apprehend may anſwer better between the coats than coal, as it will keep the clay more open.

In your work, in the piece marked No. XIII. page 68, I find brine is recommended for preſerving gravel-walks, *&c.* from weeds; but *with you*, I apprehend, the expence will be too great to do large gardens: I think a ſolution of copperas, which in itſelf is cheap, might anſwer that purpoſe; though as yet I have never made a trial of it.

I have ſprinkled founders-earth on gravel-walks, which anſwered in keeping down the weeds, but gave them a diſagreeable blackneſs, till the rains had waſhed them in*.

If any thing in this ſhould be of ſervice to the public, I ſhall think myſelf ſufficiently paid for my trouble †.

I am, GENTLEMEN,

Your moſt obedient humble ſervant,

Jan. 25, 1764. A SINCERE WELL-WISHER.

NUMBER XCIII.

A Letter to the Editors, on the great Benefit of Furze as Food for Horſes, &c.

GENTLEMEN,

HAVING a horſe which had been over worked, to the appearance of a ſurfeit, I treated him in the uſual manner for that diſorder; and knowing how neceſſary it would be to his ſpeedier recovery to give him green food after his phyſic, it occurred to me that furze might anſwer the purpoſe immediately, as there could be none of the common herbage procured before the end of April at ſooneſt: I therefore had a quantity of the tops and tendereſt parts of that plant cut daily to preſerve it freſh,

* If founders-earth will keep down the weeds in gravel, the blackneſs might eaſily be removed, by watering them, without waiting for rain; it could be no very great expence. R.

† This correſpondent's future favours would oblige us. R.

which I haſhed upon a block, with a very long and heavy chopping-knife, as ſmall as poſſible, and then beat it again over the ſame block with a carpenter's mallet, (which blunted in a great meaſure the ſharp prickles) and gave half a peck a day of it to the horſe, (in the ſtable) which eat it moſt greedily, and received ſo much benefit from it, that he is totally recovered, and carries a very fine coat.

The ſucceſs of this experiment led me to conſider the great utility this plant may be of to poor people, who live in the neighbourhood of large commons over-grown with it, as food for cows in winter when fodder is dear, and in reality not ſo proper for milch cattle as this green food, which muſt naturally encreaſe their milk, and from the fragrant ſmell it ſent forth while cutting, it may reaſonably be conjectured, will give no ill taſte to it, as many vegetables do *.

I remember to have read, in a Magazine laſt year, that a gentleman in Wales had invented a mill, of a very ſimple conſtruction, to reduce the furze to a ſtate proper to give cattle: it is therefore to be wiſhed that gentleman would communicate to the public the manner of conſtructing his mill, which would be for the benefit of many poor families, and others, whoſe particular ſituations may enable them to uſe it.

I have thrown theſe few looſe hints together for your inſpection, and, if you may think them in any wiſe uſeful, to inſert them in the next number of the *Muſeum Ruſticum*, which is a work I heartily wiſh ſucceſs to, as it affords an eaſy channel to communicate detached experiments in agriculture

* We muſt refer our readers to No. XXV. of our collection, where they will find furze treated of as a green fodder much uſed in Wales, and recommended for culture in proper places where land is not too dear; but as ſheep, rabbets, hares, &c. deſtroy young furze when in its firſt tender leaves, being very fond of it, the land ſhould be well fenced with cloſe hedges, or the farmer cannot promiſe himſelf ſucceſs in raiſing this crop. E.

culture to the public *, and may be the means, in time, of bringing that hitherto-neglected, though moſt uſeful art to ſome degree of perfection; which has till now been confined to poor, or illiterate people, though deſerving the ſtudy and attention of the wiſeſt, and thoſe of the moſt opulent fortunes, who will not feel the ill ſucceſs which may attend the failure of an experiment, and would deter a perſon of a confined fortune from a further purſuit.

I am, GENTLEMEN,

Your very humble ſervant,

Surry, Jan. 14, 1764. RUSTICUS.

To the Care of Mr. Robt. Davis,
Bookſeller, Piccadilly.

NUMBER XCIV.

A Letter to the Editors, relating two curious Methods of propagating Trees.

GENTLEMEN,

AMONG the various methods of propagating trees, the *two* following, being ſomewhat ſingular, may perhaps be thought not unworthy of a place in ſome future Number of the *Muſeum Ruſticum.*

The *firſt* is Mr. Barnes's method of propagating trees by the bud and branch, as follows.

" Every leaf upon the branch of a tree, or ſhrub, has " uſually a young bud in its boſom; and it is certain each " of theſe buds has in it the rudiment of a tree of the ſame " kind: therefore it appeared reaſonable to think that every " branch might afford as many new plants as there were " leaves upon it; provided it were cut into ſo many pieces, " and a proper dreſſing was found to prevent the raw ends " of each piece from decay. The beſt mixture for this

* This correſpondent ſeems to enter into the full ſpirit of our undertaking: a continuance therefore of his communications will oblige us much. E.

" purpoſe, upon careful and repeated experience, I have " found to be this.

" Melt together, in a large earthen veſſel, two pounds " and a half of common pitch, and half a pound of tur- " pentine. When they are melted, put in three quarters " of an ounce of powder of aloes; ſtir them all together; " and then ſet them on fire: when it has flamed a moment, " cover it up cloſe, and it will go out: then melt it well, " and fire it again in the ſame manner: this muſt be done " three times. It muſt be in the open air, for it would fire " a houſe; and there muſt be a cover for the veſſel ready. " After it has burnt the laſt time, melt it again, and put " in three ounces of yellow wax ſhred very thin, and ſix " drachms of maſtich in powder. Let it all melt " together till it is perfectly well mixed; then ſtrain " it through a coarſe cloth in a pan, and ſet it by to " cool.

" When this is to be uſed, a piece of it muſt be broke " off, and ſet over a very gentle fire; it muſt ſtand till it " is juſt ſoft enough to ſpread upon the part of the cutting " where it is wanted; but it muſt not be very hot. It is " the quality of this dreſſing, to keep out wet entirely: the " part which is covered with it will never decay while " there is any principle of life in the reſt; and, this " being ſecured, nature will do the buſineſs of the grow- " ing.

" This I have found true in practice; and by repeated " trials, in more kinds than one, I have found that I could " raiſe from any piece of a branch as many good plants as " there were leaves upon it."

The *other* method relates only to the propagation of the *Engliſh elm*, by grafting it upon the *Dutch*. This method has been practiſed for ſome time by a gentleman in *this* neighbourhood, who has found it to ſucceed very well; the elms growing much faſter than in the common way, and the timber being equally good.

As

As I myſelf have *lately* made *both* theſe experiments, and *hitherto* with ſucceſs, I hope the communication of them will not be thought impertinent * in,

SIR,

Aynho, Jan. 26, 1764. Your humble ſervant,

W. T. B.

To Mr. Newbery, *Bookſeller, in* St. Paul's Church-Yard, London;
For the Editors of the Muſeum Ruſticum.

NUMBER XCV.

A Letter to the Editors, relative to the Management of Horſes employed in the Works of Huſbandry.

GENTLEMEN,

UNdoubtedly the horſe is the moſt uſeful creature we have: it is therefore well worth our while to be attentive to his health.

I have always had a particular regard for this noble animal, and it has been my conſtant endeavour to make his neceſſary ſervitude as eaſy and comfortable to him as poſſible.

Horſes are naturally lovers of liberty, and we ought in gratitude to allow them as much of it as is conſiſtent with the work we ſhould reaſonably expect from them.

Moſt of the diſorders to which they are ſubject ariſe from the too great reſtraint they are kept in †. What can be

* By the laſt paragraph of our correſpondent's letter, we ſhould judge that he has *ſo lately* tried theſe methods of propagation, as not to be able to aſcertain their ſucceſs from his own experience: we ſhould therefore take it as a particular favour if he would, from time to time, acquaint us with the progreſs of the vegetation in his experiments, that we may be enabled to judge, from his report, whether the methods he mentions are ſo far practicable as to be eaſily brought into uſe. O.

† We agree with our correſpondent in this point, and think horſes ſhould have more liberty allowed them, where it is in any

be harder than, after working them eight or nine hours, to tie them up with a halter in a ſtall not more than four feet wide, and perhaps ſeven or eight long, there to remain for the reſt of the day and night? whereas, had they their liberty, at leaſt a reaſonable ſhare of it, allowed them, they would much ſooner recover their fatigue, and enjoy by far a better ſhare of health.

This I know to be a fact from my own experience; for I never keep my horſes confined in a ſtable, winter or ſummer, and find great benefit from this practice; for my horſes ſeldom ail any thing, are not ſubject to coughs and colds, and laſt me more years than my neighbours.

I have two fields of ten acres each near my houſe, and I have a ſtable built ſo as to afford a ready entrance into each field.

In theſe cloſes I let my horſes range alternately, in each a year at a time; and I have always one of the fields either in wheat or barley, with both which crops I ſow a ſmall ſprinkling of clover; and in this manner they pay me very well.

I do not depend much on the pickings my horſes get of the clover, though it is of ſome ſervice to them; for they are always regularly fed, winter and ſummer, in the ſtable, where I have, for that purpoſe, a rack and a manger properly fixed.

Their general food is, in ſummer, green fodder mowed freſh and freſh, and laid for them in the rack; and this conſiſts of either clover, ſaintfoin, or good meadow graſs: they have beſides a proper allowance of corn, which is always proportioned to the work they do, and the condition they are in; and I do not confine them to oats alone, but allow a variety of beans, peas, tares, oats, barley, and even ſmall wheat, and ſometimes rye. I find by this management they eat

any ſort convenient: in large cities this cannot be done; they may however be now and then ſupplied with green fodder, which would be of great ſervice. O.

eat their meat heartier, and with a better appetite, and their health is much better preſerved *.

In winter I allow them a moderate quantity of good ſweet hay; but the greateſt part of the corn they eat in this ſeaſon is given them unthreſhed, which is an excellent method: it ſaves hay, as they neceſſarily eat a great deal of the ſtraw or haulm with it, and their appetites are thereby conſtantly kept up, and they do their work with chearfulneſs: beſides, this way of feeding prevents your plowman from giving them more corn than they ought to have, and from ſtarving three or four horſes to make one uncommonly fat, which he happens to take a particular liking to.

The ſtalls in my ſtable are conſtantly kept well littered, that the horſes may lie down, either by night or by day, at their eaſe; and they generally prefer lying in theſe ſtalls to ſleeping in the open air, in ſummer becauſe the flies are there leſs troubleſome, in winter becauſe they find it warmer, and are not ſo much expoſed to the inclemency of the weather.

By the practice of this method with my horſes, none of them are ever troubled with greaſy heels, which chiefly proceed from their ſtanding too long in the ſame poſture without exerciſe. In the ordinary way of managing horſes, they are always either hard at work, or ſtanding ſtill: this muſt of courſe be unwholeſome, and a mean is neceſſary betwixt the two extremes. A moderate exerciſe is always wholeſome to animals; and if you give a horſe the liberty of ranging at will over a few acres of land, nature will prompt him to be as much in motion as is neceſſary for his health.

Many have aſſerted that the haulm of peas and tares are unwholeſome food for horſes, but I never found them ſo. I know however that they are not good, in too large quantities,

* We have known many gentlemen practiſe this method of permitting their horſes to range at liberty over a few acres: it is certainly conducive to their health; on which account we recommend it. Our correſpondent's other remarks on the management of this generous animal ſeem very worthy of notice. O.

tities, for horſes that are kept confined in a ſtable; but let them have the uſe of their limbs, and this fodder will do them no injury.

I imagined that in ſuch a work as yours, a hint or two for the benefit of ſo noble an animal as the horſe could not but be proper: this induced me to write, and this will, I hope, induce you to give a place for my letter in your collection: it is but ſhort, and that may probably be a part of its merit; though too much cannot be well ſaid on a good ſubject, eſpecially if it is properly ſaid. How far I have been guilty of impropriety yourſelves muſt be judges: I have related ſuch facts as I have myſelf experienced, and which will ſtand the teſt of future trials.

Derby, Your humble ſervant,
Sept. 2, 1763. A COUNTRY FARMER.

NUMBER XCVI.

A Letter from a Member of the Society for promoting Arts, &c. to Dr. Templeman, *their Secretary, being a Compariſon of the* Hainault *Scythe with that uſed by the Ancients.*

SIR,

PLINY in his Natural Hiſtory, book XVIII. chap. xxviii. deſcribes two ſorts of ſcythes; the one uſed in Gaul, the other in Italy; and by his deſcription the Hainault ſcythe appears to be the very identical one deſcribed by Pliny: it will more particularly be confirmed by the different manner of uſing it, and the benefit of it above the other, if you will examine the 30th chapter of the ſame book, where you will be ſurpriſed to ſee the ſeveral manners of working the ſtraw in thatching, *&c.* and that this ſcythe cuts cloſe to the ground, and the other cuts the corn and graſs but half off, *&c. &c.*

The different manners of the operation of the Hainault ſcythe, and the ſickle, may be thus intelligibly expreſſed; the firſt *hacks* as a bill, the ſecond *crops* as a hook, and

and the common ſcythe for graſs *ſhaves* as a razor *.

If we look into the Grecian hiſtory, we may find, amongſt the earlieſt accounts of that nation, that Ceres, a woman of Sicily, about the year before Chriſt 1030, (according to Sir Iſaac Newton, in his Chronology, p. 15.) comes into Attica, and there teaches the Greeks to ſow corn; for which benefaction ſhe was deified after death: ſhe firſt taught the art to Triptolemus, the young ſon of Celeus, king of Eleuſis. Agreeable to this fact, Pliny tells us, lib. VII. c. lvi. that Ceres was the firſt that ſhewed the way of ſowing corn; whereas, before, men lived on maſt: ſhe taught alſo how to grind corn, to knead dough, and make bread thereof, in the land of Attica, Sicily, and Italy; for which benefit to mankind ſhe was reputed a goddeſs.

I do not, by this paſſage, ſuppoſe Ceres or Triptolemus to be the *inventor* of the ſickle, as ſome have done; for it is plain the Greeks knew what corn was before that time, though they raiſed it not; for the ſame great author ſays, p. 171.

"Leleæ might come with his people into Laconia, in the "days of Ely, and leave his territories to his ſons Myles, "Eurotus, Cleſon, and Polycon, in the days of Samuel. "Myles ſet up a *quern*, or hand-mill, to grind corn, and "is reputed the firſt among the Greeks who did ſo; but he "flouriſhed before Triptolemus, and ſeems to have had his "corn and artificers from Egypt."

Many other authors take notice of the ſame things Pliny has mentioned above, *viz.* Cato, cap. liv. Varro, iv. c. 31. Columella, lib. XII. c. xviii. lib. II. c. xxi. Cicero, v. Tuſc. 65. Ovid, xiv. Metam. line 628. xiii. Metam. l. 934. vii. Metam. l. 227. i. Epiſt. l. 33. i. Amor. 15. 12. Tibul. i. 4. 8. Virgil. Georg. i. l. 348. iv. Æneid. l. 543. ii. Georg. l. 365.

* We are very particularly obliged to this gentleman for communicating to us the above letter for publication: any future favours from the ſame hand will do us honour. This letter was read before the committee of agriculture, and greatly approved of. E.

But the earlieſt account is to be found in the Pentateuch, Deuteronomy, cap. xvi. ver. 19. and again, cap. xxiv. ver. 25.

I have not time to tranſcribe the paſſages for you; but if from theſe references you will conſult the originals, you will find there what I ſay.

I cannot, however, omit mentioning here another paſſage, which ſhews the importance of this ſort of knowledge, which I met with in Voltaire's Life of Peter the Great, lately publiſhed in two vols. octavo; where he ſays, (ſee the French edition, vol. i. p. 76.) "L'agriculture même, qui "eſt le premier mobile du tout, etoit neglegée, elle exige "du gouvernment de l'attention, et des encouragements, "et c'eſt ce qui a fait trouver aux *Anglois* dans leur *bleds* "un treſor ſuperieur a celui de leurs laines *.

I am, &c.

Y. Z.

NUMBER XCVII.

A Letter to the Editors, on the Culture of Coleſeed in the Fen Countries, from a practical Farmer.

GENTLEMEN,

AS you give a general invitation, pleaſe to accept my little knowledge in agriculture; if it prove acceptable to you, and of ſervice to the public, my end is entirely anſwered: but I muſt firſt deſire you will excuſe all inaccuracy and falſe grammar.

It is not to be expected that practiſing or working farmers can be ſuppoſed to be ſcholars; for moſt farmers, ſoon as their children become uſeful, inſtead of ſending them to ſchool, ſend them to drive plow, or other neceſſary buſineſs in

* Even agriculture, on which the well-being of the ſtate depends, is neglected: it requires attention and encouragement from the government, and it is this care has occaſioned the *Engliſh* to find a greater treaſure in their corn, than they have long poſſeſſed in their wool.

in that way of life; which is the ſole reaſon that ſo uſeful a ſet of men are ſo unconverſible on every other ſubject, and even in their own buſineſs, unleſs they may be allowed their own technical terms, which to gentlemen are ſo uncouth, that it is almoſt impoſſible that the true practice of agriculture can be made known; as the one, for want of a proper ſtyle to make known his knowledge; ſo, on the other hand, gentlemen who abound in literature want the knowledge of practice; that from theſe two extremes it is very difficult to come at a certainty: however, I ſhall make no further apology, but come immediately to the ſubject I intended *.

I have read your *Muſeum Ruſticum, &c.* In a piece marked No. LIV. page 237, ſigned S. T. from Witham in Eſſex, I find the culture of coleſeed. As different countries have different methods, I will give you an account of the culture of coleſeed in the fens.

I live in that part of the fens called Bedford Level, and have ſown many acres of coleſeed, and have conducted it through the various operations from the plow to the merchant.

Fen land is a ſoil quite different from the high lands of Eſſex or Kent, and what we call the high countries; and our method of culture is as foreign from theirs, as our general ſyſtem of agriculture in this nation may be from that uſed in the Eaſt or Weſt Indies. We make uſe of no muck or compoſt, but have recourſe to a method peculiar to the fens.

As the fens are ſubject to be very wet in the winter ſeaſon, notwithſtanding the many endeavours that have been made, and have not (except in ſome particular places) been attended with the ſucceſs as could be wiſhed for, though great improvements have been made; I would, however,

* We require no apologies for the ſtyle of our correſpondents letters: we are greatly indebted to this gentleman for his favour, and ſhould be glad to receive every month many ſuch, as it abounds with good ſenſe and ſolid experience. "One fact," an eminent council uſed to ſay, "is worth an hundred argu-"ments." R.

be underſtood to ſpeak of fen lands that can be kept dry in ſuch order as a winter crop may with tolerable ſafety be ſet thereon.

About the middle of May we plow the land for burning, which is ſward-land that has not been plowed for four or five years, or perhaps a longer time: our plows are what are called Dutch plows, with a large ſhare; the edge and point is very thin and ſharp, and is kept ſo by filing: the furrows ſhould not be more than about ſeven or eight inches wide, and an inch and a half thick, and as few baulks or miſſings as poſſible: when it has lain ſo long that the ſods or furrows are dry, (in which the farmer's own diſcretion muſt guide, it being impoſſible to point out that in this place) it muſt be made into heaps about the ſize of middling graſs-cocks, each perſon carrying on with him, as he heaps, about ſeven furrows: the work will then direct him how big the heaps will be; the heaps ſhould be made as narrow at top as you conveniently can, by way of prevention againſt wet weather. If every perſon keeps his work as to the number of furrows, the heaps will riſe in regular rows; but one thing ſhould be obſerved in the heaping: the uſual method of the workmen is, to ſet the rows in the following manner: for information ſake we will ſuppoſe three rows made in the common method, which will . . . . . ſtand, as in the margin, one heap againſt . . . . . another, in regular lines each way; but . . . . . this method is entirely wrong; for when you come to ſpread the aſhes, they do not cover the ground ſo regularly as if the heaps ſtood in quincunx order, as in the . . . . . ſecond figure in the margin, the heaps of . . . . . the ſecond row being placed againſt the in- . . . . . tervals of the firſt, *&c.*

When it is fit for heaping, the cuſtomary way of this country is to put the burning out to people, to burn and ſpread the aſhes, which muſt be ſpread ſo as meer and cover the ground all over: the uſual price is from three ſhillings to five ſhillings *per* acre; but that, in a great meaſure, depends upon the dryneſs or wetneſs of the ſeaſon; but I think it

it moſt adviſeable, where people are plentiful, to do this work by the day; then you put on as many people as you think fit; for it ſhould be burnt off with all poſſible expedition, for if it be long in burning it is attended with bad conſequence, which in bad rainy weather is hard to prevent: it is therefore very requiſite to follow it up, otherwiſe the graſs-roots, that lie below the reach of the plow, when plowed for burning, will ſhoot out, and in a little time become almoſt as full of graſs as though it had not been plowed at all: then, when you plow it after the burning, inſtead of breaking, ſo as the ſeed may fall into the cracks, it will turn up as ſtreight as clay, and then no ſeed can grow any where but in the ſeams between each furrow.

When one ſide of the field is cleared, with aſhes ſpread, you muſt, as ſoon as there be room, get to plowing, and ſowing the ſeed: you muſt ſtill obſerve to have your furrows no wider than already mentioned, and about two inches deep; for as fen land, in general, plows tough, more than breaks, you will have more ſeams than if the furrows are made wide: the cuſtom with us is, to ſow at night the land plowed in the day; for we account it the beſt way to ſow the ſeed as ſoon as poſſible after the land is plowed.

The quantity we ſow on an acre is about half a peck, or rather leſs: it would be proper to draw a light hurdle, ſtuck with thorn ſprays, over it, by way of prevention againſt the fowls. We plow the lands about ten paces wide, that the furrows may carry the water off, where the land lies on a little deſcent.

There is one thing to be obſerved in the plowing, if the ſquare of the piece will admit of it: you ſhould plow for burning from eaſt to weſt; and when you plow for ſowing, then plow north and ſouth, for theſe reaſons: firſt, the land will break better for being croſs-plowed; and then the land, when ſown, will lie as it were full face to the ſun; but this cannot always be done.

We have now plowed, burnt, and plowed the ſecond time, and ſown the ſeed: your Eſſex correſpondent recommends hoeing *; but that is a practice I am an entire ſtranger

* See page 238.

ger to; nor can it be done in the fens, the land being too tough for ſuch an operation.

As ſoon as the coleſeed begins to ſprout, it is often all deſtroyed with what we call a black fly; an inſect ſo ſmall, and being black, the ſame colour of the land, that it is almoſt impoſſible to ſee it, otherwiſe than as you walk among the ſeed, if you look ſteadily, you will perceive ſomething hop or fly off, like the hopping of a flea: I have very often endeavoured to diſcover what ſort of fly this is, but never could find one, though they will find the ſeed immediately on its firſt ſprouting.

It has many more enemies as it advances in its growth: the next is what we call the black canker; it is a ſmall black worm, about a quarter of an inch long, or rather more: this takes poſſeſſion when it is about the ſize of a ſmall cabbage-plant, but windy and rainy weather are great helps to the deſtroying that inſect.

There is yet another enemy, but he appears in a different dreſs: this is the green caterpillar, more than an inch long, but don't come till about the latter end of September, and very often deſtroys a great deal of it; but the froſty mornings generally diſpatch him.

I have now gone through the various ſteps of the culture of coleſeed to this particular period, with a ſuppoſition that we have eſcaped all thoſe dangers. I will now give you a ſhort ſketch how we proceed when we are attacked with thoſe enemies above mentioned.

If the ſmall black fly eat the firſt ſprout, it is uſual to ſow the land again; but I would adviſe the farmer, before he ſows, to harrow the land with a light harrow with wooden teeth, for if the harrow be heavy it will tear up the furrows: my deſign in this is, to raiſe a freſh mould *, by which means the ſeed will ſtrike much ſooner than if nothing was done to it.

As to the black canker, the only method I can adviſe is, to let two men take a waggon-rope, each take one end, and

* This a very ſenſible caution, and much to be recommended on ſuch occaſions. R.

and draw it over the plant about twice in a place, by which means the canker will be beaten off the plant on to the ground, which ſeldom riſes again.

As to the green caterpillar, the ſame expedient, I believe, would be of ſervice to that; but, as I have ſaid before, we are chiefly relieved from it by froſty mornings.

I ſhould now proceed to acquaint you what uſe we put the coleſeed to when it is arrived to this ſtate of growth; as alſo what ſubſequent crops we ſow after the ſeed is eaten off; and alſo why we chuſe to burn the land rather than muck it; and alſo to give you ſome account of coleſeed ſown in September, and for what reaſon and purpoſes they are ſown at ſuch different times; and alſo the method we proceed in, in the reaping and threſhing; and what we eſteem a tolerable common yield *per* acre: but an information of this ſort would take up too much room in your *Muſeum, &c.* that may be filled with much better articles *.

I am, GENTLEMEN,

Middle Level, Your humble ſervant,

Jan. 28, 1764. J. J.

NUMBER XCVIII.

A Letter to the Editors, from a Member of the Society of Arts, containing Hints and Deſiderata in the Art of Dying.

GENTLEMEN,

I Have read the ſeveral Numbers of the *Muſeum Ruſticum* which have made their appearance, and approve much of their contents; but am greatly ſurpriſed ſo little has been written by your correſpondents on the ſubject of dying.

This may be eſteemed, eſpecially in England, a very conſiderable branch of commerce, as moſt of our woollen goods

* We muſt beg the favour of our correſpondent to complete his account of the coleſeed, as raiſed in the Levels, which will lay us under a great obligation. O.

goods are indebted to it for the preparation they receive before they are in a condition elegant enough to be exported.

Surely it muſt be allowed that this art of dying is capable of great improvements; and can there be a more certain method of bringing it to perfection than a communication of knowledge?

Almoſt every dyer has his little ſecret, which, for want of being communicated to ſomebody capable of improving on the hint, remains uſeleſs on his hands; and he had rather it ſhould do ſo, than that any other ſhould benefit by his thought.

But is not this a narrow way of thinking; and would not the man, who had the leaſt public ſpirit, be content to ſhare with others the benefit of that hint which he was not himſelf capable of improving?

The misfortune is, that many men who follow this buſineſs are mere machines: they have been taught, during their apprenticeſhips, that ſuch and ſuch ingredients, combined and managed in particular modes, will have ſuch various effects: they take all upon credit, they know nothing of the doctrine of cauſes, and are quite ignorant of what is meant by the theory of an art.

It is not from ſuch men we are to expect improvements in the art of dying; they are content to jog on in the old *routine*; and if they loſe not any part of their knowledge, thus by rote acquired, they think they have acted well their part in life.

Others indeed are more ingenious; they make uſe of their reaſon, and are curious to ſearch into the latent cauſes of the effects they every day ſee produced: they may perhaps in part diſcover theſe cauſes, and, by various experiments of different combinations of ſubſtances, may, by chance, produce an effect which to them appears new: their next thought is, to turn this as much as poſſible to their own particular advantage, and it is ſeldom they get much by it; whereas, were they to communicate generouſly to the public this their boaſted ſecret, it might either turn out no new diſcovery, or, if new, might be capable of great

great improvement, which the experiments that would ſoon in courſe be made would ſoon effect. All the honour of the diſcovery would reſt with the perſon who had firſt given the hint, and he would have his ſhare in the profit reſulting from the practice of his method. But I ſhould do great injuſtice to the dyers, did I not confeſs that there are among them men remarkably intelligent, who have ſtudied nature, are maſters of the principles of their art, and know how to improve on accidental circumſtances.

To theſe is the nation much indebted for many important diſcoveries, which I am willing to think they would communicate for the benefit of their country, did they know of any proper method of doing it. Doubtleſs, as you, Gentlemen, have afforded them a fair opportunity of proving their public ſpirit, they will not miſs the occaſion; but I ſhall hope ſoon to ſee ſome valuable pieces in your collection on this ſubject.

As I have gone ſo far, I ſhall next proceed to hint to you a few *deſiderata* in this art.

Allum is by the dyers ranked among the *non-colouring drugs*. This ſalt is well known to be greatly uſed by the dyers; it is a common ingredient in many of their compoſitions; but in what manner it acts on the matter to be dyed, is not yet well accounted for.

Some reaſonings, from facts I mean, on this ſubject, would be of great utility; and who ſo capable of reaſoning on it, as the laſt claſs of dyers I mentioned, who, being in continual practice, have conſtant opportunities of obſervation, which we will ſuppoſe few of them ſuffer to eſcape unapplied?

I ſhould alſo be glad to ſee ſome good theories for dying a fine black: experiments might eaſily be made on them, and the proceſſes, if good, ſoon brought into uſe: our preſent practice is doubtleſs bad, when compared to that of the French, as their blacks beyond compariſon excel ours; to inſtance it only in their hats, which never grow ruſty to the laſt, being thoroughly tinged with a good colour.

The French crimſons alſo excel our's; they are more permanent, and leſs apt to fade. I have not the leaſt doubt, but that by a mutual communication of knowledge we ſhould ſoon attain methods of dying theſe two colours to as great perfection at leaſt as the French; and ſurely it is worth attempting.

I am apt to think that the true method of uſing madder for dying ſcarlets is not yet diſcovered: the *baſtard ſcarlets* are, it is true, dyed with it; but it is highly probable that this uſeful root might, if properly prepared, or mixed with proper ingredients, be uſed as a ſubſtitute for that very expenſive drug cochineal.

To procure a fine bright colour, it is not unuſual to over-dye the ſtuff, and afterwards diſcharge a part of the colour by *back-boiling* with a mixture of ſome *non-colouring* ingredient.

I ſhall not, I dare ſay, be thought to advance too much in aſſerting that this art of back-boiling is not ſufficiently underſtood. Great miſtakes are made in its application; it is often omitted when the practice would be very ſalutary, and applied when it would better be let alone. In this caſe therefore, I think, improvement is wanting.

We know that copperas is uſed for dying blacks; but what mediate effect it has on the ſtuff, any more than what the ſenſe of ſight tells us, we know not; its ultimate effect we ſee by the ſtuffs aſſuming a black dye: how it operates, verified by experiment, would be a uſeful acquiſition; as ſuch I recommend it to the conſideration of your ingenious readers.

One more thing I muſt beg leave to mention before I conclude, which is, that the qualities of the ſeveral kinds of water, when uſed in dying, are not yet ſufficiently aſcertained. The dyers will tell you that one water excels another in particular uſes; but aſk them the reaſon, and they are quite a-ground.

Some have aſcribed the beauty of the French blacks to the quality of the water they uſe; but if it was owing to this alone, it would ſurely be no very difficult matter to enquire

enquire into the nature of this water; and probably much of the ſame quality might be found in our iſland.

This water, or *white liquor*, as the dyers call it, is indeed a very neceſſary article, ſerving as a common or general menſtruum for their colours. The proper uſe of the white liquor in dyes might be doubtleſs reduced to a regular ſyſtem, and the colours to which the ſeveral kinds are beſt adapted might eaſily, by proper experiments, be aſcertained: much of the elegance of the art depends on a propriety in this matter; but how much we know not.

I have taken up a great deal of your time; and after all you may perhaps ſay, that I rather propoſe than ſolve difficulties: it is true, I do ſo; I mean this letter as a hint to the ingenious to communicate their hitherto ſelf-reſerved knowledge, and am not without hope, that I ſhall ſoon ſee ſome difficulties, which occur in the noble art of dying, removed by means of ſome of your correſpondents letters; and in this hope I beg leave to ſubſcribe myſelf,

GENTLEMEN, Your moſt obedient ſervant,
A MEMBER of the SOCIETY of ARTS, *&c.*
And a LOVER of USEFUL IMPROVEMENT.

NUMBER XCIX.

The Reverend Mr. Stephen White's *Letter to the Editors of the* Muſeum Ruſticum, *concerning* Collateral Bee-Boxes.

GENTLEMEN,

ONE of the leading queſtions in your firſt *Muſeum*, is, *Whether the number of bee-hives might not be to advantage encreaſed in many places?*

The management of theſe uſeful and delightful inſects has long been the principal amuſement of my leiſure hours. I have already given the public, and particularly the worthy *ſociety for the encouragement of arts*, &c. the reſult of my obſervations and experiments, in a

pamphlet entitled *Collateral Bee-Boxes* *; the third edition of which, with improvements, is juſt publiſhed.

As to the encreaſe of bees, it is much to be wiſhed, but cannot be expected, ſo long as the preſent cuſtom prevails, of burning well nigh *half the bees* in the kingdom every autumn. To kill and deſtroy, is not the way to encreaſe your ſtock, notwithſtanding the old bee-miſtreſs's favourite maxim, *Burn bees and have bees:* which is no bad proverb when rightly underſtood; and the plain meaning of it is, that 'tis better to burn bees outright, than to drive them into an empty hive, where they muſt periſh with hunger. But if you can take away ſuch part of their ſtore, as they can well ſpare, and preſerve their lives, to work for you another, and many other years, this muſt of courſe, by their ſwarming, encreaſe your ſtock: the encreaſe of your ſtock will add greatly to your profit; and you will, by the ſame means, be relieved from the painful taſk of burning your little innocent labourers, which no true lover of bees can perform without much concern and reluctance.

An effectual method of doing this has been in vain attempted by moſt of the authors who have wrote on this ſubject. With a view to this diſcovery, I have tried, during the ſpace of near forty years, more, I believe, than forty different forms of boxes; and have now the ſatisfaction to think myſelf amply rewarded for all my pains and expences, in having, at laſt, hit upon a method of taking part of the honey, *without deſtroying*, or much *diſturbing*, the bees; which appears ſo eaſy, plain, and natural, that I cannot help being ſurpriſed that it was not the firſt which occurred to my thoughts.

There is one popular objection, not againſt my boxes in particular, but againſt all hives made of wood, *viz.* that they are colder than ſtraw-hives, and therefore the bees will not proſper ſo well in them: I have, I think, fully

* We acknowledge ourſelves greatly indebted to Mr. White for this token of his approbation: a continuance of ſo valuable a correſpondence will oblige us much. N.

fully anſwered this objection in my pamphlet †, to which I beg leave to refer, and ſhall only obſerve here, that in the cold country of Ruſſia, from whence great quantities of honey are imported into theſe kingdoms, their hives are (all of them, I believe) made of hollow trees.

I am, GENTLEMEN,

Your moſt humble ſervant,

STEPHEN WHITE.

Stratford, Suffolk,
Feb. 10, 1764.

P. S. A pair of boxes, with a pane of glaſs in each, and painted, will coſt about four ſhillings and ſix-pence: which, allowing for the duration of them, will be as cheap as ſtraw hives.

NUMBER C.

A Letter to the Editors, on the Damage of too much Rain, Wet, &c. to Farmers; containing two Remedies for curing the Rot in Sheep.

GENTLEMEN,

AS we have had, this laſt autumn, and preſent winter, more rain, in proportion for the time, than has fallen for many years paſt, I hope you will not think the following reflections, chiefly collected from a long experience, unſeaſonable.

We hear daily of many counties being in a manner overflowed by the land-floods; thouſands of ſheep have been drowned, and it is to be feared many more will die of the rot, occaſioned by too much moiſture, or periſh for want of fodder.

The wheats in many places will be waſhed out of the ground,

† The ingenious pamphlet above referred to is entitled as follows, *Collateral Bee-Boxes; or, A new, eaſy, and advantageous Method of managing Bees.* In which, part of the honey is taken away in an eaſy and pleaſant manner, without deſtroying, or much diſturbing, the bees; early ſwarms, if deſired, are encouraged, and late ones prevented. With a copper-plate frontiſpiece, repreſenting theſe bee-boxes. Price 1s. A.

ground, and the flat lands will be ſo wet, that the ſpring-corn ſeaſon will of courſe be backward.

We receive theſe things at the hand of God, and ſhould not murmur; yet human prudence may often apply a palliative at leaſt, if not a remedy.

The damages done to our crops by land-floods is chiefly owing to the want of proper drains to carry off the water, when it comes ſuddenly down upon us, and to the ſlovenly cuſtom many farmers have of not ſcouring their ditches for years together: a ditch properly diſpoſed ſerves as a drain to a field; but then there ſhould always be a fall for the water, and a channel to give it paſſage into the lower grounds.

Moſt wonderful things have been done in the draining way. It was at one time thought impracticable to drain the extenſive level between Yorkſhire and Lincolnſhire, as the great river *Idle*, navigable of itſelf, paſſed, with its deſtructive land-floods, through the vaſt level on the Yorkſhire ſide of the Iſle of *Axholm*; yet was this river, by the ſkill of the undertakers, carried through a new cut into the *Trent*, on the other ſide of the iſle: by this happy thought the draining was greatly facilitated, and a large tract of land recovered from the waters.

When land is hurt by floods, the firſt thing neceſſary, is to ſee where the water enters, and whether its courſe may not be diverted into another channel, ſo as to carry it either round or through the land, without much damage.

Where this can be done, if the land is not in its own nature wet, much loſs may be prevented; but if the floods come down ſo ſudden and violent that there is no ſtopping them, the next remedy is, to give them as eaſy a paſſage as poſſible: for this purpoſe, we muſt find the loweſt part of the land, and bring the fall of the water all that way, if practicable, opening channels to carry it off.

Theſe main channels, or drains, ſhould always be made large enough to carry off the body of water; and in fact there is very little land ſo abſolutely flat and level, as to have

have no fall: the great art is to diſcover it, and make a proper uſe of it.

If, in any particular caſe, we find it out of our power to make a paſſage deep enough to carry off the water from the bottom of the drain, either by reaſon of our being prevented from cutting through another perſon's land, or that the paſſage is long, or in the neighbourhood of ſome river, which may be apt to revert upon the works; it is then beſt to erect an engine, which will be found of great uſe, and do that which could by no other method be done. If the water is not to be raiſed to any great height, the engine need not be large, and of courſe will not be expenſive.

Some have an objection to engines, if the uſe of them can be avoided, as there may not always be wind to move them; but this is little to be feared; there will always be wind ſufficient, at one time or other, to keep the drains empty; for during the greateſt calms are always the greateſt droughts, and in the wetteſt ſeaſons winds are ſeldom wanting, eſpecially on flats or levels.—So much for draining.

I ſhall next take notice of ſome of the effects of too much wet. In the firſt place, over-much moiſture generally proves very injurious to corn: the uſual remedy, eſpecially in cold clays, and ſtiff loams, is to lay the land in high ridges, and cut drains at the ends of the furrows, to carry off the ſuperfluous water: this method I approve of, and have often to advantage practiſed.

It has been remarked by many, as well as myſelf, that after a wet ſummer, corn is apt to be blighted. This is, I think, eaſily accounted for: the reaſon is, that the ſuperabundant moiſture, which lies at the roots of the corn, makes it run much to ſtraw, and little to corn; and at the time the corn ſhould kerne, the moiſt vapours exhaled from the wet grounds by the ſun do, in the nature of a mildew, prevent the due growth of the grain in the ear.

It is neceſſary to take notice of one very remarkable circumſtance, which has been very often obſerved, and is laid down

as

as a maxim by huſbandmen; which is, that when theſe mildews ariſe, or blights fall, they infect one ſort of grain generally, as ſometimes only wheat; at other times oats, &c. The ſame thing happens in fruits: ſometimes apples are generally blaſted; at other times only pears; and often only cherries, walnuts, filberts, plums, &c. like the murrain in cattle, infecting one ſpecies. This is a thing I have never been able properly to account for, and ſhould therefore be glad of the ſentiments of ſome of your more able correſpondents, on the ſubject.

The greateſt enemy the huſbandman uſually finds in time of harveſt is rain, againſt which the beſt remedy is expedition: he ſhould remember the old proverb, and *make hay whilſt the ſun ſhines*.

I have often been ſurpriſed, that in large farms, where they have a conſiderable diſtance to carry their corn when it is cut, they do not erect here and there, in their fields, temporary ſhelters, in which the wheat at leaſt might be preſerved from damage by rain, till opportunity ſerved to cart it home. This would be almoſt every year of great ſervice, but more particularly ſo in dripping haveſts. I could wiſh my brother farmers in Ireland, where they have more rain in proportion than we have, would take the hint. The expence of erecting ſuch a ſhelter, capable of containing a large quantity of corn, would be trifling, when compared to the many advantages that would reſult from the practice of this method. Theſe ſhelters would be far from uſeleſs the remainder of the year: they might be ſo contrived as to ſcreen the cattle, during the winter ſeaſon, from the ſeverity of the weather; they might be made to ſerve as covered folds for ſheep, than which nothing can be more uſeful; beſides many other purpoſes, too tedious now to mention.

In different counties the farmers have different methods. In *Somerſetſhire*, in order to preſerve their wheat from damage by rain in harveſt, they lay their ſheaves in very large ſhocks, or heaps in the field; and they contrive to

cap

cap them in ſuch a manner, that they will not in a long time take damage.

This is certainly a good practice, and worthy of imitation: yet in *Wiltſhire*, and ſome more ſouthernly counties, they leave moſt of their corn without care to the chance of good or bad weather, though the fields are often at a great diſtance from the barns; and this negligent practice is ſometimes of courſe to their very great detriment.

In the weſt of *England*, in the champaign countries, where the lands ſometimes lie two or three miles from the barns, the *reek ſtaval* * is of great uſe; the corn is much ſooner laid ſecure, and long draughts are ſaved, which is a matter of great importance at ſo buſy a time.

It is too much the cuſtom, in ſome very extenſive farms, to have only one immenſe barn near the homeſtall: this is very inconvenient, and it would be much better to have ſeveral barns diſperſed at convenient diſtances in the land. The corn would thereby be ſooner houſed, and better preſerved, as well as eaſier threſhed; the foddering the cattle with ſtraw would be more convenient, and the muck or dung would be more diſperſed, and much cheaper carted for the improvement of the land. In the common way we often ſee the fields round the farmer's houſe rich and well improved by manure; whereas, thoſe at a diſtance are frequently in a wretched ſtarving condition, by being conſtantly cropped and never mended: did the landlord therefore know his own intereſt, he would certainly diſperſe his barns over the whole ſpace of his land.

I know it will be objected, that barns at a diſtance from a farm-houſe will be more open to the attacks of night plunderers; but this leads me to make another obſervation, which is, that the labourers employed in a farm ought to live in cottages on the land; and where can theſe cottages ſo well be diſpoſed as to have one of them near each barn? In this manner would the farmer's property be well guarded,

* This is a term uſed in the weſt, and ſignifies a frame of wood placed on ſtones, on which the mow is raiſed: this is ſometimes alſo called a *reek ſtaffold*.

and his labourers would be nearer at hand to do his buſineſs; whereas now they are often obliged to go two or three miles to work, which cannot be for the advantage either of the labourer or maſter.

I am now come to the more important part of this letter, meaning to detain your readers ſome time longer, till I have ſaid a word or two on the ſubject of the rot in ſheep, which is almoſt always principally occaſioned by too much moiſture.

But the rot in ſheep does not always proceed either from moiſture alone, or the nature of the ſoil alone; for all moiſt grounds do not cauſe the rot in ſheep, and there are ſome lands which rot ſheep in wet years only.

The rot, in fact, ariſes from a certain putrefaction, both in the air, and in the graſs or herbs that uſually grow in ſuch moiſt years: theſe, together with their moiſt food, corrupt their livers, and bring on the diſeaſe.

It is indeed very difficult to cure this diſorder, unleſs it is attempted before the liver is too much waſted: where there is a convenience of doing it, the beſt remedy is, an immediate removal to *ſalt-marſhes*; but this is far from being in every farmer's power: I ſhall endeavour therefore, from my own former experience, to ſupply the deficiency.

In ſuch caſes as theſe, a prevention of the evil is to be recommended to the practice of every rational farmer.

Some grounds naturally yield a ſoft, ſpungy graſs, which is, more than any other, ſubject to breed the rot in ſheep; I would therefore adviſe, that other cattle be fed in theſe grounds, and the ſheep kept in the drieſt, hardeſt, and healthieſt paſtures.

I have known land that has kept ſheep in health for many ſucceſſive years, yet afterwards, when the months of May and June have proved wet, a frimm and frothy graſs has ſuddenly ſprung up, which, together with the bad air that muſt of courſe follow, has cauſed a rot in the ſheep that were then on it: the evil was obſerved in time, the ſheep were removed to a dry and almoſt barren heath, and in the ſucceeding winter they were foddered with good,

dry,

dry, ſweet hay, and a great loſs was prevented: this happened to an old friend of mine, ſince dead.

This unwholeſome graſs is moſt apt to grow in cold land, and in the ſummer-time; and it is a general opinion, and well founded on experience, that if the ſummer does not rot ſheep, the winter will not, the power of the winter alone not being ſtrong enough to begin a rot.

A very ſenſible writer, whoſe book I have juſt turned to, I mean Mr. Liſle, ſays, that broom is very good for the rot; and indeed I have often experienced it; for in a farm I occupied ſome years ago there were ſeveral broom-fields, and I have often obſerved that ſuch of my ſheep as were part of the year fed in them were never infected with the rot, whilſt others in my poſſeſſion had it to a great degree. I profited however by experience, for I took care thenceforward that all my ſheep ſhould, by turns, enjoy the advantages to be derived from their feeding on the young ſhoots of the broom.

As to what Mr. Liſle ſays, on the authority of Mr. Ray, that the marſh-trefoil will cure the rot, I cannot, from experience, corroborate it: I have heard its efficacy in this diſorder often mentioned, but never yet heard any particular fact related ſo circumſtantially as to induce me to depend on its effects.

That ſalt is good, I agree with the above gentleman and Mr. Boyle; and this gives me an opportunity of communicating a receipt which I know to be a good one.

" When you perceive, by the colour of your ſheep's " eyes, that the rot has taken them, drive your flock into " a barn, a covered fold, or ſome ſuch convenient place: " around this place let there be wooden troughs, like man- " gers, in which you ſhould feed your ſheep with good, " dry, clean oats, for forty-eight hours: then have ready " ſome bay ſalt finely powdered and ſearced, of which you " are to ſprinkle a little among the oats, encreaſing the " quantity till it diſguſts the ſheep, and you perceive they " fall off their appetites: afterwards, for the two following " days, give them again clean oats; and then mix your ſalt

" with them as before, continuing this proceſs till their " eyes have recovered their natural colour, when you will " find them perfectly cured; and to be convinced, it will " only be neceſſary to kill one or two out of the flock*."

To this I ſhall add a receipt for the rot in ſheep, which was communicated to me by a friend, a man of credit and veracity, who ſays he has often tried it with ſucceſs.

" Steep ſome regulus of antimony in ale, adding thereto " ſome grains of paradiſe, and a little ſugar to ſweeten it. " Of this infuſion ſomewhat leſs than a gill is to be given " to every one of your affected ſheep: they are to have two " or three doſes, according as they are more or leſs affected " by the diſtemper, allowing two days intermiſſion between " each doſe." This is ſaid, as I have already obſerved, to be a cure almoſt certain.

I juſt now took notice, that when rain falls in the months of May and June it is apt to cauſe the rot in ſheep: it will be neceſſary to add, that folding them in the above months encreaſes the diſorder; for after having been deprived of their liberty during the whole night, they bite the noxious graſs the more greedily in the morning, having leſs ceremony in their choice of herbs than if they were not folded. This is a matter of ſome conſequence, therefore worthy of being attended to.

One thing more I muſt, on the authority of Mr. Liſle, communicate to your readers, *viz.* an obſervation of a *Leiceſterſhire* farmer; that ſheep, when firſt touched with the rot, will thrive mightily in fatting for ten weeks; but if they are not diſpoſed of when they are come up to a pitch, they will, in ſeven or eight days time, fall away to nothing but ſkin and bone. The ſame farmer obſerved, that he had often had them die in the height of their pitch, in half an hour's time, with twenty-ſeven pounds of tallow in their bellies.

I wiſh the hints contained in this letter may be of any ſervice to the public; and it would give me a great deal of pleaſure

* For a remedy againſt the rot in ſheep, nearly on the ſame principles with the above mentioned, ſee the piece marked No. XLVII. page 212.

pleaſure to ſee ſome of theſe ſubjects enlarged on by any of your more knowing correſpondents. I am,

London, Your humble ſervant,
Feb. 4, 1764. A QUONDAM FARMER.

NUMBER CI.

A Letter to the Editors, containing Obſervations on Mowing of Wheat.

GENTLEMEN,

PERSUADED, from the nature of your deſign, that you wiſh not to have any aſſertion of your correſpondents, or even yourſelves, taken for unqueſtionably true on the bare authority of the aſſerter, I ſit down to give you ſome obſervations on mowing of wheat; though I ſhall be obliged to call in queſtion ſome things of which you ſeem fully convinced.

Your correſpondent S. K. in No. IV. of your work, and page 19, having obſerved the cuſtom of the Eſſex farmers to mow wheat-ſtubble for malt-kilns, adds, "They think, "not without reaſon, that this does rather good than hurt "to the land; for the dry ſtubble, not being apt to ferment, "is a *great while* before it rots in the land; it keeps the "land *hollow*, *grows mouldy*, and, ſome think, *often occa-* "*ſions* the following crop to be ſmutty."

This doctrine, Gentlemen, (at leaſt ſo far as it regards the keeping of land hollow) one of you, ſigning N. has adopted, in the firſt note at the bottom of the page; and goes to ſuch a length as to aſcribe *poſitively* the badneſs of crops to this *ſlovenly huſbandry*.

Now, as this *ſlovenly huſbandry* (as you are pleaſed to call it) is *invariably* the practice of all huſbandmen in this, and many other conſiderable corn countries, I will do you the honour, firſt to anſwer your charge, and then apply to your nameleſs correſpondent.

I was

I was taught, above twenty years ago, in *Cambridge*, that whatever proves *too much* proves *nothing*; and have found, ever ſince, this rule of logic moſt uſeful in detecting fallacies in writers of my own profeſſion, and all others. It will be very eaſy to apply this teſt to your aſſertion.

Were this *ſuppoſed ſlovenly huſbandry* ſufficient to account for bad crops in the country where it is uſed, it would follow that *all* crops where it is uſed would be bad; whereas, on the contrary, our crops in this, and other countries where it is uſed, are well known to be as generally good as in any country where it is not uſed, and, perhaps, even better, when proper choice of land and methods of culture are obſerved. Badneſs of crops then muſt be aſcribed to a neglect of ſome of theſe circumſtances, and not to leaving ſtubble unmowed. Indeed it is ſo uncommon to ſee the wheat plants in ſpring *thin*, if the common quantity of ſeed has been allowed, with common culture, that I don't know that I *ever once* heard the complaint, which in your note is repreſented as the *common* one *.

Let

* If our correſpondent is the leaſt attentive to the ſpirit of the firſt note under page 18, he will be convinced that, where it is ſaid that the ſtiff ſtubble keeps the land hollow, it was certainly light land, in which the pores are already too large, that was meant; for on ſtiff land, ſuch as is beſt adapted to wheat, it is acknowledged plowing in a ſtubble may be of ſervice, by raiſing a fermentation, and promoting a ſeparation of the particles. He will alſo perceive that, in the ſame note, the ſtubble to be plowed in and ſown with wheat could not be a wheat ſtubble, as wheat never ſucceeds wheat in the ſame land: what was here meant, was a ſtiff oat ſtubble. In many counties it is cuſtomary, when land is firſt broke up, to ſow it with oats, to abate the rankneſs of the ſoil, and afterwards to ſow wheat; for was wheat to be firſt ſown, it would run all to ſtraw: in this caſe the oat-ſtubble muſt be ſuppoſed very ſtiff, and capable of damaging light land by being plowed in. As to what is ſaid in the note, relative to wheat plants being in the ſpring thin and ſcattered, it is not mentioned as a *common* caſe, as our correſpondent ſeems to imagine: that it has happened on light land, where an oat-ſtubble has been plowed in, the editors could give ſeveral inſtances. It was thought neceſſary to ſay ſo much, in expla-

Let us now inquire into the reaſon of your nameleſs correſpondent, S. K. "Dry ſtubble, not being *apt* to ferment, "is a great while before it rots in the land." I muſt own, Gentlemen, it appears to me that, in fact, every ſingle circumſtance, here hinted, tends to prove the direct contrary of what your correſpondent would prove. I will allow, that *dry ſtubble* may not be *apt to ferment*; but then I add, that the *ſtubble* in queſtion is *not dry*: it ſtands to receive all the rains from the time of *reaping* till the time of *ſowing* in ſpring; and what a quantity of rain *ſuch* hollow tubes as ſtubble muſt receive, I need not ſay: let us add the effects which *froſts* and *thaws*, during the ſeaſon, will have. No one can doubt what alteration, in tendency to rotting, will be made in the ſtubble by theſe and other concurring cauſes.

When the plowing carries this ſtubble into the land, it is obvious that it muſt lighten it extremely; and as ſoils fit for wheat are generally too compact, this circumſtance muſt be very advantageous to the following crop; eſpecially as clayey ſoils, which are fitteſt for wheat, eaſily bark on the ſurface, and let the rains in ſummer fall from the ridges to the furrow; when the ſhrinking ſtubble will ſupply channels to diſtribute and preſerve the moiſture obtained before this drying ſeaſon.

As to *mouldineſs*, it is ſurpriſing that your correſpondent ſhould aſcribe it to *dry ſtubble*, when it is well known to proceed from *moiſture*, and want of free paſſage of freſh air; circumſtances which muſt attend lands unplowed in winter, whether the ſtubble be *ſhorn* or *mown*, and is chiefly to be aſcribed to the rotting of the roots of the ſtubble, which are the ſame in both caſes. As to your correſpondent's laſt ſuggeſtion, that *ſmuttineſs* may be the conſequence of leaving ſtubble long, it ſcarce deſerves any anſwer: it proves evidently *too much*, *viz.* that *all* grounds, whoſe wheat is not mown, would have the ſucceeding crops ſmutty; the contrary

explanation of the above note, in which the editors acknowledge the ſenſe is not ſo fully expreſſed as it might have been. We are greatly obliged to Mr. Comber for his remarks, and ſhall be glad of a continuance of his correſpondence. N.

contrary of which is moſt notorious. Indeed your correſpondent is ſo modeſt as only to ſay, "*ſome think.*" *

And here, Gentlemen, I muſt wonder that, as one of you ſo readily fell in with this correſpondent's doctrine, about the *ſuppoſed* diſadvantage of leaving *long unmown* ſtubble, ſo none of you beſtowed a note on the doctrine of another correſpondent, who, in No. XLI. page 190, ſays, that when he has *cut* his *beans*, he *immediately* plows in the ſtubble, and *inſtantly ſows wheat* †. If any inconvenience could ariſe from plowing in the wheat-ſtubble in ſpring, how much more from an *immediate* plowing in ſuch a ſtrong ſtubble as that of beans?

While I was writing this letter I was viſited by a gentleman-farmer, who is a man of *experience* and *underſtanding*, and lives much nearer the Wolds (where the wheat is all mown) than this place, and has a fair opportunity of judging of the conveniencies of both methods: he, though a *modeſt* man, is *moſt clearly of opinion*, that the leaving of ſtubble long, as in ſhearing ‡, is ſo far from being a diſadvantage

* Though ſmuttineſs is known chiefly to befall the *wheat* and *rye* crops, (and more eſpecially the former) yet, as it happens in a degree to the crops of *barley* and *oats*, I choſe rather to ſuppoſe him to mean theſe by *the following crop*, than *another wheat crop* at the full diſtance of three years. COMB.

† This quotation is not quite fair. Our correſpondent above referred to ſays, "As ſoon as my bean-crop is cut and tied up, "I carry them on to ſome up-land dry paſtures, where they "are ſet up to dry, and I immediately plow up the field where "the beans grew, and give it at leaſt another plowing before "I put my wheat into the ground." It is evident then, the wheat was not *inſtantly* ſown. The reaſon the editors did not beſtow a note on this paſſage is pretty evident: they naturally imagined that their correſpondent cauſed the bean-ſtubble to be pulled up before he plowed the land, though he does not mention his doing it; and they were particularly led to this opinion, by his having before told them, that his ſoil was a light gravelly loam, on which ſo ſtrong a ſtubble could not but do damage. N.

‡ In the north of England they call reaping wheat ſhearing it: we ſhould be greatly obliged to Mr. Comber, if he would inform us what is the particular method of mowing wheat in the *Wolds*, and whether it differs from the common way of mowing barley and oats. E.

vantage to the land, that it is a conſiderable advantage; the long ſtubble, when mellowed by the winter, being equal to *half* a manuring; eſpecially when the warmth which the ground receives from this, as from all covers in winter, is conſidered.

Where proper fuel for malt-kilns is wanting, the uſefulneſs of ſtubble for this purpoſe may be a motive for mowing of ſtubble: though one would think that *ſtraw* ſhould better anſwer this purpoſe, and the expence of ſhearing, and then mowing of the ſtubble would be ſaved *.

Wheat-ſtraw is indeed *very uſeful*, as it makes no deſpicable thatch, eſpecially where plenty of rye-ſtraw is not to be had; and they muſt have an abundance of fodder, who do not uſe wheat-ſtraw for this purpoſe; for, although it is rather too dry even for oxen and young cattle, and binds them too much when uſed alone, it is good for almoſt any goods, (except milch cows) when mixed with coarſe hay, or *barley* and *oat-ſtraw*, eſpecially the laſt, the plenteous juices of which correct the dryneſs of the other.

In proportion then as wheat-ſtraw is uſeful, the argument for mowing of wheat is advanced; but then it muſt be remembered, that more manure is abſolutely neceſſary for land, the wheat of which has been mown; and ſince the expence of loading and ſpreading of manure is known, from a conſideration of all theſe ſeveral other circumſtances muſt we eſtimate the utility of mowing of wheat.

I muſt defer my other obſervations on this ſubject to another opportunity †, and am, in the mean time,

GENTLEMEN,

A ſincere friend to your undertaking,

THOMAS COMBER, *Junior*.

Eaſt-Newton, near Malton, Yorkſhire,
Jan. 19, 1764. P. S.

* Many farmers in Eſſex are ſo ſenſible of the advantages of clearing their lands of ſtubble, that they permit the labourers to mow it for their own benefit, and ſell it at a ſtated price *per* load to the maltſters; but we would not wiſh to be underſtood that this is done on heavy lands. N.

† The ſooner this gentleman ſends us the obſervations he mentions, the more he will oblige us; and we take this op-

P. S. I ſet my name to this letter, as I perceive you ſeem to approve that practice of your correſpondents, and, I think, rightly.

NUMBER CII.

A Letter to the Editors, recommending the Culture of the Tea Plant, *now growing in* Carolina.

GENTLEMEN,

MANY have doubted whether the trade carried on by the incorporated Eaſt-India company is advantageous, or diſadvantageous to this country; but be that as it may, the great conſumption of *tea* is often urged as an argument for its continuance.

The balance of trade to that part of the world is certainly much againſt us, witneſs the immenſe quantities of bullion that are annually exported in their outward-bound ſhips; and it is as certain, that a very conſiderable ſhare of this bullion is exchanged for the purchaſe of the different kinds of *tea*.

As this is the caſe, would it not be allowed ſome degree of merit, ſhould I point out to you in what manner we might eaſily be ſupplied with this article of family conſumption from our own American colonies; our ſouthern colonies, I mean, ſuch as the Floridas, Georgia, and South Carolina?

It is very well known, that in the trade carried on betwixt our North-American provinces, and the mother country, the balance is greatly in favour of the latter; that is, the value of the imports into North-America from England greatly exceeds that of the exports to it; of courſe, whatever article can be imagined, that will tend to bring the trade betwixt the two countries nearly upon a par, muſt be advantageous to both; and this I will venture to ſay may be

portunity of thanking him for ſubſcribing his letter with his name, and wiſh all our correſpondents would do the like. R.

be effected by encouraging the growth of the *tea plants* in ſuch of our colonies as are beſt adapted to the nature of thoſe plants.

There is not the leaſt doubt but that the tea plants might be to great advantage raiſed in thoſe provinces.

A celebrated author ſays that "the *tea tree* loves to "grow in valleys at the foot of mountains, and thrives "beſt in a ſtoney ſoil. Its ſeed is uſually ſown in places "expoſed to the ſouth; and it bears flowers three years "after it is ſown. The root reſembles that of the peach "tree: the leaves are green, longiſh at the point, and "pretty narrow, an inch and a half long, and jagged all "round. The flower is much like that of the wild roſe, "but ſmaller. The fruit is of different forms, ſometimes "round, ſometimes long, ſometimes triangular; and of "the ordinary ſize of a bean; containing two or three "ſeeds of a mouſe colour, including each a kernel. Theſe "are the ſeeds by which the plant is propagated.

"The trees are of various heights, from one foot to an "hundred: ſome there are which two men cannot fathom, "while others ſcarcely exceed the feebleſt ſhrub in a "garden.

"The *green tea*, which is the common tea of the Chi- "neſe, F. le Compte calls *bing tea*, and ſays it is ga- "thered from the plant in April. The *bohea tea*, which "is the *voui tea*, or *bou tcha* of the Chineſe, father le "Compte makes only to differ from the *green tea*, by its "being gathered a month before it, *viz.* in *March*, whilſt "in the bud. Others take it for the tea of ſome parti- "cular province; the ſoil being found to make an altera- "tion in the properties of *tea*, as much as the ſeaſon of "gathering it.

"The beſt time to gather *leaves* of *tea* is while they "are yet ſmall, young and juicy: when gathered, they are "paſſed over the ſmoke of boiling water to moiſten them; "then they are laid on copper plates, which are heated; "and thus, the leaves drying, they curl up in the manner "in which they are brought to us."

Doctor Lewis, under the article *Thea* in his *Materia Medica*, ſeems to differ in ſome points from the above-quoted ingenious author. He ſays, "The leaves, carefully picked, "are dried haſtily on warm iron plates; whereby they "are ſaid to loſe in great meaſure ſome noxious qualities, "which they have when freſh, and to preſerve their ad-"mired flavour, which by ſlow exſiccation would be "loſt."

For my part, I ſhould rather be inclined to join with Doctor *Lewis* in opinion, as copper when heated to a certain degree emits diſagreeable and noxious vapours, ſuch as muſt, I ſhould imagine, more or leſs, affect the leaves as they are drying on the plates.

But it may perhaps be urged, To what purpoſe all this detail about *tea*, and the advantages of cultivating it for European conſumption in America, when we ſhould find it ſo difficult a matter to get from the cunning Chineſe the ſeeds of any of the plants?

Happily this want is already ſupplied; the plants are now actually growing in *South-Carolina*, and have been of late much propagated. If it ſhould be aſked how they came there; the fact is as follows.

Some years ago a *Dutchman*, who had lived many years in China, left that country, and retiring to *South-Carolina*, bought there a plantation on the banks of a pleaſant river, with an intention of paſſing in that delightful country his remaining days, which, as he was old, could not be many.

This man had, by ſome means or other, learnt of the *Chineſe* the art of drying the ſeveral kinds of tea: he had procured a quantity of the ſeeds, which he brought with him to America, where he planted them in his garden, intending to propagate them by degrees, ſo as to be able to ſupply at leaſt that continent with *tea* for their conſumption; but God diſpoſes, though man may propoſe; for before the plants were come enough to maturity to yield leaves in any quantity fit for drying, the old *Dutchman* died, and the whole project dropped: yet, as it was ſomething curious to have the *tea plants* growing in a province ſo far diſtant

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from the country which naturally produces them, many gentlemen, his neighbours, procured ſeeds from the Dutchman's plants, and they have been propagated in the gardens in that province ever ſince, though ſome who poſſeſs them know not what they are.

It is evident then, as we are now actually in poſſeſſion of this plant, ſo valuable on account of the great conſumption of its leaves, that we ought to make the moſt of it. A very few well-judged experiments would ſoon give us the ſecret of drying the *tea:* the plant is eaſily propagated, comes ſoon to maturity, and plantations of it might ſoon be made that would annually produce a very large quantity of this now almoſt neceſſary commodity.

As I mean this letter only as a hint for ſome of your more able correſpondents to take up and purſue, I ſhall not engage your readers time any longer, and prevent their reading articles in your collection, they may poſſibly think much more material than this. I am,

GENTLEMEN,

Your humble ſervant and admirer,

Jan. 21, 1764. AMERICANUS.

NUMBER CIII.

A Letter to the Editors, on the Culture of the Vine.

GENTLEMEN,

IN the *Muſeum Ruſticum* for the month of December there is a ſhort letter, marked No. LXIX. page 305, recommending the planting of vines on caſtle walls, ruins, *&c.*

Your correſpondent would have conferred a greater obligation on your readers, had he enlarged a little more on the ſubject, which is of ſome importance, it being very difficult to procure good grapes in England, at leaſt, according to the common methods of culture.

The

The gentleman above mentioned obſerves, that a clergyman planted ſome vines on a church tower, which yield grapes of a ſuperior flavour, owing to the dryneſs of the ſoil wherein the vine grew. I agree with him in his reaſon, experience having confirmed the truth of it to me, and many of my friends.

I many years ago planted ſome vines at the back of my houſe; the ſoil was naturally dry; but I was inclined to make an experiment. Accordingly I planted my vines in two ſeveral methods, one in each method alternately; half of them I ſet in the natural ſoil, according to the vulgar method of planting; but the other half were managed very differently.

I cauſed as many holes, about four feet ſquare, and as many deep, to be dug, as I had vines to plant in this method. Theſe holes were filled with a compoſt, conſiſting of one part of the natural earth, which is a dry loam; a ſecond part lime-ſtone gravel, and the remaining third part lime and brick rubbiſh.

This was well mixed by being frequently turned; and when the holes above mentioned were filled, more of the compoſt was laid on, till a large hillock was raiſed in the ſpot where each vine was to be planted.

In theſe hillocks the vines were planted, and they ſucceeded well. They were not, it is true, ſo luxuriant as thoſe planted in the natural earth; but they came a year ſooner into full bearing, and the fruit they yielded was infinitely ſuperior.

This conſideration determined me to root up all thoſe planted in the natural ſoil, which I accordingly did; and the vines planted in the compoſt have now covered my walls, and bear me good fruit.

The reſult of this experiment it is induces me to agree with your above correſpondent, that a dry ſoil is beſt for vines.

Before I conclude this letter I muſt mention one circumſtance, which will corroborate what your correſpondent has ſaid relative to planting vines on church towers: it

it is this, and your doubting readers may eaſily ſatisfy themſelves of the truth of it, being near a place of great public reſort.

Not far from Freſhford, a clothing town in Wiltſhire, on the borders of Somerſetſhire, about four miles from the city of Bath, is a place, and a moſt delightful ſpot it is, called the Hermitage. It is built with great art in a rock, and very romantically ornamented. In the ſeveral parts of the rocks about the houſe are many crevices, in which vines have been long ago planted, and ſucceed to admiration, as every one who has taſted the grapes produced in this hermitage muſt acknowledge, their flavour being ſuperior to any of the kind known in England.

This, I ſay, Gentlemen, ſeems to corroborate what your ingenious correſpondent has ſaid in his letter above referred to; and I ſhould be glad if ſome others of your readers would communicate what comes within their knowledge in this way, as I have not the leaſt doubt but that there are many parts of England where vines grow in this odd manner, and yield good fruit.

As to the matter of inverting the branches, I cannot ſay I ever ſaw any ſo trained; but it may be a very good way, and as it tends to divert the regular courſe of the ſap, may be a means of encreaſing the quantity of the fruit. Naturaliſts tell us that plants will grow in a ſtate abſolutely inverted; and poſſibly they may: why then ſhould we doubt vines thriving in the method of culture recommended by your correſpondent? I have only leiſure to add, that I approve of your collection, and am,

GENTLEMEN,

Your moſt obedient ſervant,

Saliſbury, E. T.

Jan. 20, 1764.

NUM-

NUMBER CIV.

A Letter to the Editors, from Mr. Irwin, *reſpecting ſome erroneous Practices in* Ireland *in the Management of Sheep.*

Reficit Induſtria, et ditat.

GENTLEMEN,

THE great honour you do me, by giving a place in your moſt uſeful collection to the trifling amuſements of a leiſure hour, encourages me to communicate to you, according as recollection furniſhes them, ſuch matters, in the practical and theoretical parts of huſbandry, as I have made my buſineſs.

Though the public ſocieties in Ireland, where I am a landholder, do a great deal towards exciting a ſpirit of agriculture, yet there ſeems to be ſtill much left undone.

This would not be the caſe, had the leſſer farmers, who are always the moſt numerous, and ſuppoſed to have the moſt practical experience, been more inſpired than they are with the laudable patriotic deſire of communicating to the public the operations of their different methods of farming, (for moſt people vary in this reſpect more than any difference of ſoil requires) by which means a proper ſyſtem of huſbandry, for the different provinces of that kingdom, might, to its permanent emolument, be ſoon eſtabliſhed.

The farms, or tracts of land, in the occupation of landholders, in moſt parts of that kingdom, are unproportionably large for the buſineſs of population and domeſtic proſperity, as greater benefits would reſult from a more equal diſtribution. Hence it follows, one man will hold from one to 8000 acres (bog and other unprofitable ground excluded) of fine champaign land; and a great part of it perhaps within one mearing, with few or no ſubdiviſions, ſo that his ſtock may run in a manner promiſcuouſly, as if in one of the boundleſs lawns of Louiſiana.

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I have been amazed at this deſtructive neglect in others, and (ſince my coming into England) more ſo in myſelf.—The proper diviſion of land is the *corner ſtone* of farming. Yet till within theſe laſt forty years, (and the number is ſtill but inconſiderable) few have attended much to keep their cattle properly ſeparated, except by men and dogs.

The immenſely deſtructive inconveniencies ariſing from this neglect (ſo far as they come within my little experience) I ſhall mention to you, as proper occaſional opportunity may offer. For the preſent it may be ſerviceable juſt to point out ſome neceſſary precautions with reſpect to ſheep.

Of all the quadrupeds, the ſheep perhaps is the animal beſt adapted by providence to pay the rent. It requires great attention to it; but at the ſame time, little bodily trouble. The chief care ſhould conſiſt in their cantonment for food, in which our Iriſh farmers are extremely negligent (I mean thoſe of them that have abilities to be otherwiſe); for they ſtation them promiſcuouſly over the land, encloſing only the fattening grounds, which is done but badly, and other cattle ſuffered to mix with them; whereas ſheep, in their rearing and fattening ſtate, ſhould be by no means ſuffered to perambulate a variety of paſture. For this reaſon—

Moſt cloſes, or encloſed fields, have ſome herbage, beſides the common graſs, predominant in them; and where ſheep are ſuffered to run over too many of theſe at once, the different mixtures in ſuch extenſive paſtures have, I am convinced, from repeated experimental obſervations, very unfavourable effects on this tender and delicate animal, both as to rearing and fattening, or as to bone and growth*.

* If, ſuppoſe upon an average, over 500 acres of ley ſurface there ſhall be found, on phyſical examination, graſſes (or rather herbs) of different qualities, ſome hurtful, and predominating in different fields; it is evident, ſheep, being let through ſuch a large parcel of ground at once, (which is too much the cuſtom in Ireland) will ſuffer infinitely from the inſalubrious fermentation that ſuch an unwholeſome mixture will cauſe in them; the ſecretion ſending the more ſubtile parts of theſe (in a manner)

It actually gives, or inclines them to a *ſcower* (and other diſorders well known to the ſhepherds) oftentimes not leſs prejudicial than that which they never fail getting in low ſwampy grounds, which always proves mortal to ſheep that are ſuffered to remain ever ſo ſhort a time in ſuch places; for though the noxious inſane effects of ſuch paſture may not immediately appear, or operate on them, it never fails bringing on the rot in the end, which manifeſts itſelf by the *ſcower*, and other unhealthful ſymptoms.

A gentleman in my neighbourhood, who occupies ſeveral thouſand acres of deep, rich ſoil, ſuffered a conſiderable loſs of ſheep, particularly ewes, in the ſpring of 1759, (I think it was) and that ſeaſon was far from being inclement, eſpecially wet, which is the moſt unfavourable weather to that kind of ſtock.

I made cloſe enquiry into the cauſes of this uncommon mortality, for ſuch it appeared to me at that time.

The common reaſons for this deſtructive peſtilence were indeed given; but from ſome obſervations I made from appearances, I did not judge them ſatisfactory.

It ſeemed to me that a too extenſive run of over fertile, luxuriant ſoil, little or no ſhelter, negligence in folding, and other care not difficult to be taken, but abſolutely neceſſary to the well being of this delicate animal, had brought on a deadly and general rot.

Many were with difficulty ſaved, only to languiſh away, in all probability, the ſucceeding winter; for though a ſheep, the firſt time it is tainted with the rot, whether in winter or ſummer *, may for that ſeaſon, with great care and

ner) poiſonous herbs into the blood. The larger quantity of natural graſſes may indeed leſſen their deſtructive influence; but they can never totally ſuppreſs it. Hence I would adviſe our farmers to divide their ſheep into ſmaller flocks, and to allow them a leſs ſcope of land to run on. Ir.

* Sheep acquire the rot in ſummer moſtly by being ſuffered to remain too long on bottom lands. It is evident then that wet is the chief deſtroyer of ſheep: hence it is that houſes for them prove excellent preſervatives; and in over wet ſeaſons, ſuch

and difficulty, be preſerved, it nevertheleſs ſeldom happens that any amelioration of paſture will make it a long liver; for when it is once touched with this diſorder, a cure may (as in many human chronical diſeaſes) be patched up; but it will never get thoroughly clear of it. Hence the generality of our farmers, though they may think otherwiſe from their practice, appear to me to be in great error in this reſpect.

But their ſtock is commonly too large, and they are continually buying in, or ſelling out; ſo that by not keeping them for any length of time they have not proper opportunities to explore rightly the effects of the cauſes we are now inveſtigating.

The largeneſs of their ſtock, I ſay, prevents them from looking minutely into theſe neceſſary matters, which is not in general the caſe in England. Beſides, from the great numbers they oftentimes poſſeſs, they are ſo accuſtomed to loſſes in this way, and ſo little attendant to phyſical cauſes, that they are things of courſe with them; neglects I call

ſuch as the preſent (Feb. 1764) is, and has been for ſome months paſt, I would adviſe the ſhepherd not to let his ſheep about the land till noon; and not then, unleſs there has been previouſly two or three hours of fair weather (if ſun ſhine, ſo beſt) to dry the tops of the graſs; and he may in this caſe continue them at paſture till night fall. But whenever (in the depth of winter eſpecially) the days prove wet for any continuance, it will be found to turn to much more account to keep them houſed a-days, (inconvenient as it may be to ſome of our more extenſive ſtock-maſters, or aukward *ſlabbering* ſky-farmers) and give them a little hay, ſtraw, or other fodder: very little in ſuch emergencies will do, for it is well known that a ſheep can live fifteen days without any ſuſtenance. They have been often found deep buried under the ſnow for ſo long a time ſafe and well, and have been diſcovered only by the chimnies which their breath made through it. They are moreover much ſubject to fail in their feet, which is chiefly occaſioned by being ſuffered to be too much a-foot over the land, while it is impregnated with wet. This prevents numbers of them from driving properly, either to market, or on removal from farm to farm, which is hurtful to the farmer, many of them falling lame on the road, being obliged to be ſold at half price. IR.

them, that a little attention would eaſily remedy, were the flocks never ſo large: and in this reſpect indeed it muſt be admitted, cuſtom erroneouſly commits too many to the care of one ſhepherd in a country not yet thoroughly improved.

Through the lazineſs or inattention of the herd (for careleſs they almoſt all are) many caſualties they pretend ariſe from the unimproved ſtate of the farm, and eaſily impoſe them as ſuch on their employers, whereas they ſolely proceed from their own neglect.

To remove ſheep often is an excellent temporary preventative againſt the rot, and moſt other diſorders incident to them; but to fold them dry a-nights is ſtill more infallible; that is, to keep them from rain; but the largeneſs of the flocks in Ireland, moſt people imagine, is an abſolute bar againſt this ſalutary expedient.

This is an ill-founded ſurmiſe. If they would divide their ſtock into ſmaller proportions, that is, to limit their ſheep-walks to one or two hundred acres at moſt, under the care of one man; to allow to theſe proportions (the land being, we'll ſuppoſe, of no more than a middling good ſort) three ſheep *per* acre in ſummer, and one and a half in winter, in the rearing or breeding way; and to erect on every ſuch farm proportionable ſhelter-houſes to a ſouth, or ſouth-by-eaſt aſpect, (but never to the north or weſt, the winds blowing, eſpecially from the latter point, too long and cold) there would not be one third of the annual dearth of ſheep there is; and in this computation I fancy the proportion is exceeded.

Thoſe who hold very extenſive tracts, may ſay this ſimple expedient is not practicable; but it certainly is, both to the conſiderable and inconſiderable farmer, even in parts where timber is not eaſily had, which ſeems to be the chief difficulty. Suppoſe now (to give a very feaſible hint) a houſe made of turf (if no ſtone or brick could be conveniently had) 100 feet long, about fourteen wide, and the wall about five feet high, with four large doors or openings to the aſpects before mentioned; ſlight and cheap timber

girthing, eaſily carried from afar, would do for this buſineſs as well as the beſt; the thatch, whether ſtraw out of the barn, or ſtubble*, which laſt is far the beſt, we know, is of trifling value in thoſe parts, and ought to be well ſowed on with ropes, which makes it effectually reſiſt ſtormy weather; and the erecting the wall of turf, or, which is much better, with clay-mortar, well mixed with ſtraw-rubbiſh, we alſo know, cannot coſt much, where labour is but from a groat to ſixpence a day.

In ſhort, I could erect one of theſe houſes in this manner on every hundred acres, which is the quantity of land that ought to be allowed to each, for fifteen pounds, Iriſh money, or, at moſt, twenty. The land, ſpoiled by digging off the ſods, would be ſoon reſtored by the treading of the ſheep. The hay-yard, of courſe, to be adjoining this houſe.

All the objection I think can be made is, the not being able to move theſe houſes, thereby to ameliorate different ſpots of the farm, as they do in Switzerland their wooden houſes that run on wheels.

Conveniencies in countries are different: in Switzerland there is plenty of wood; in many parts of Ireland the length and difficulty of carriage renders a ſufficiency of it for this purpoſe impoſſible to be had: beſides, moving houſes, for aught I know, may do well in Switzerland, or in England; but ſuch as I mention would anſwer extremely well in Ireland.

In this way I am ſenſible the winter-mucking would be almoſt always on one ſpot; but it would make much dung, which

* Wheat-ſtubble, which in Ireland is left in the ground from twelve to eighteen inches long, is the very beſt of all ſorts of thatch; ſurpaſſes the oat-ſtubble, the ſedge, or long lowland ſpiry graſs, common ſtraw, palmetto leaf, or any other in uſe: it is beſt ſowed on with pitched twine, or rope-yarn, and will hold very well without repair ten or a dozen, or more years, unleſs carried away by over-violent ſtorms or hurricanes. In Ireland it reſiſts the weſtern monſoons exceeding well, and they moſt commonly, every ſeaſon, blow a ſtout gale. But where pitched twine cannot be conveniently had, ropes made of new hay, or even of ſtraw doubled, will anſwer the end ſufficiently. I have had a conſiderable deal of thatching done for me with great ſucceſs in this way. IR.

which might be removed to great advantage; and if it had not, is it not evident that it would be much more beneficial to loſe the night-mucking, during the three or four moſt inclement months of the year, than treble the worth of it of one's ſtock? Moreover, I am not clear, but the dung being preſerved from the froſt would go farther than if ſcattered by the ſheep about the land in hard weather: and, though it is much the cuſtom to turn out dung in that ſeaſon, I am certain, (and many phyſical cauſes will demonſtrate it) the ſooner afterwards it is mixed with the land, the more of its virtue it will retain.

But before I quit the article of ſheep: as I ſaid before, countries and circumſtances differ; for though I don't approve of extenſive unencloſed paſtures in Ireland, it ſeems in Spain they do well enough: the flocks there are ſmall, as in France; but they have a right of commonage in that country, perhaps not in any other civiliſed one that we know of.

There it is a conſtant practice with the ſhepherds, ſoon after ſhearing time, to ſet out with their flocks, generally conſiſting of about an hundred each, and to paſs from one province to another, feeding them promiſcuouſly both on ley and corn lands *, the meadows, and ſome other particular encloſed lands, as parks belonging to the nobility, and *clergy eſpecially*, only excepted.

Theſe itinerant ſhepherds often travel three and four hundred miles from their habitation with their ſmall flock: they ſometimes take part of their family, a good deal of proviſions, a tent, and ſome well-trained dogs, and are never ſtopped if they keep their ſheep on the open lands, and often don't return home till after lambing-time.

They generally have one third, or half the profit of the flock for their hire.

By

* The ſheep in France and Spain (and likewiſe the larger cattle) will go through the corn lands, and never touch the corn: I have been witneſs of this truth, and would have been the more ſurpriſed at it had I not known how they are trained to their manner of feeding. Ir.

By this it would ſeem, extenſive paſtures are not improper for ſheep; but we are to preſume, as the ſtaple is of ſo little conſequence in Spain, that they have more loſſes there in this way, by bad management, or want of knowledge, than we have in the northern countries; for perhaps the too-intenſe heat of the ſun (which commonly deſtroys the beſt paſtures) has a worſe effect on this quadruped in Spain, than the too-great abundance of different herbs and moiſture has in Ireland.

I am, GENTLEMEN,

London, Your very obedient ſervant,

Feb. 17, 1764. JOHN IRWIN.

NUMBER CV.

A Letter to the Editors, propoſing the cultivating of Hemp and Flax in our American *Colonies, for the Conſumption of* England, *&c.*

GENTLEMEN,

HAVING lately ſeen and admired the plan of the *Muſeum Ruſticum et Commerciale*, I beg leave to offer you my thoughts on a ſubject of importance, which relates equally to trade and agriculture. That I may be as brief as poſſible, I ſhall begin with ſome general poſitions that will hardly be denied.

Firſt, That hemp and flax are neceſſary articles to a commercial and maritime ſtate.

Secondly, That hemp, in particular, is neceſſary for the ſupport of a naval power.

Thirdly, That a nation like our's, ſupported by its navy, ſhould always be ſecure of an adequate ſupply of hemp both in peace or war.

Fourthly, That we cannot be ſure of this ſupply as long as we depend on the imports from Ruſſia, or from any country independent of ourſelves.

If

If theſe poſitions are granted, we muſt either encourage a home cultivation, or import it from our North-American colonies.

The firſt of theſe has been often tried, and has been found, by experience, to be very inadequate to our wants, in reſpect of quantity; and in quality much inferior to what we import from the Baltic.

The latter project bears a more promiſing aſpect, and the purport of this paper is to recommend it to the public by all the arguments I can ſuggeſt.

Theſe arguments may ſeem indeed unneceſſary, when ſo great a writer as Joſhua Gee has enforced them, long ago, with a ſtrength and perſpicuity which all muſt admire, though few can imitate. However, as his reaſoning has been neglected, I beg leave to revive the ſubject, eſpecially as the time is come when our colonies are regarded as the true ſource of wealth and induſtry to the mother country.

But few words are neceſſary to eſtabliſh the fact, that hemp may be cultivated in North America; ſince it is well known, that all the ſhips New-England built are ſupplied with cordage of their own growth and manufacture.

If the poſſibility of ſuch a cultivation is allowed, the advantages reſulting from our ſupplying ourſelves with hemp from thence, will, I hope, be evident to every reader.

To conſider, firſt, its effects, with reſpect to our colonies: as the number of induſtrious inhabitants is the beſt criterion of national ſtrength, ſo no cultivation whatever can employ ſuch numbers as this under conſideration, for no article is ſo much wanted.

This encreaſe of raw materials will enable them to live more comfortably, by taking off more of our manufactures, which they now want, but are unable to pay for. They will extend their improvements farther, and be more cloſely connected with the mother country, as every ſhip that is built in theſe kingdoms will proportionably aſſiſt the colonies. Beſides, it ſhould be conſidered that this cultivation will not interfere with any other branch of the North-American trade; for the ſame labourers may cultivate and prepare both

hemp

hemp and tobacco, the times are ſo different; and the ſame may be ſaid in reſpect to the ſilk manufacture of Georgia.

The advantages reſulting to Great-Britain are equally clear.

Firſt, We ſhall be ſure of an adequate ſupply, both in peace and war, as we ſhall import from a country depending on us for ſupport.

Secondly, We ſhall purchaſe it with our own manufactures; and as the demand encreaſes for hemp, ſo their demand for our manufactures will be encreaſed in proportion, and each country will thereby mutually encourage induſtry in the other.

Thirdly, We ſhall prevent the North-Americans from running into manufactures themſelves, which their wants may force them to, unleſs we ſupply them with the means of cultivating more raw materials.

Fourthly, We ſhall ſave the annual expence of near 400,000*l.* in ſpecie, which we ſend to Ruſſia for this article.

Theſe are the principal advantages; all which are evident to every reader, and, if rightly conſidered, of the greateſt conſequence; for having juſt finiſhed a long, dangerous, and expenſive war, in which our navy was our chief ſupport, and having greatly enlarged our territories in North-America, we may, by encouraging this cultivation, ſave a large annual expence, ſupport our colonies, have a ſure ſupply for our navy, and encreaſe our home manufactures.

One objection only can be made; that the hemp in North-America is of a worſe quality than that from the Baltic, becauſe the cordage of New-England veſſels is more apt to ſnap and break than what is worked from Ruſſian hemp.

This objection ſhould not hinder the trial, as it may be juſtly apprehended, that the bad qualities of North-American cordage ariſe rather from bad manufacturers than from any natural defect in the plant.

It muſt be confeſſed, the encouragement of ſo large a branch of manufacture is an object of great extent, and only fit for the legiſlature, or ſome conſiderable ſociety of pub-

lic-ſpirited men, who by joint aids may be enabled to offer large premiums for a preſent encouragement.

The legiſlature did endeavour to introduce the American hemp by three temporary acts of parliament, which are now expired.

The firſt in king William's reign, which was revived under queen Anne: the ſecond act expired under George I. and was immediately revived: the third act, if I miſtake not, expired in 1743, when the nation was deeply engaged in war, and when the American colonies were leſs conſidered than ever; for which reaſons it was not revived.

As I have not the power of recommending it to the government, I beg leave to propoſe it, through the channel of your collection, to the ſociety for the encouragement of arts, manufactures and commerce, who have already undertaken ſeveral projects as extenſive as what I am now laying before you.

The object is certainly large; but if it be gradually and judiciouſly purſued, the ſucceſs is very probable; and if it ſucceeds, the advantages are evidently great.

If I may offer my private ſentiments, the only likely method of ſucceeding is to begin with ſome previous ſteps.

To offer a premium directly for the largeſt quantity of American hemp, equal in goodneſs to what comes from the Baltic, would be only diſcrediting the ſcheme in its outſet; for if the cultivation is ill managed, it is impoſſible the firſt ſpecimen ſhould anſwer; and artful men may lay hold of the failure to caſt a damp on the whole project.

We ſhould begin with inſtructing them in the propereſt method of cultivating and preparing that commodity for manufacture; which may be done by offering a good premium *for the beſt treatiſe on the cultivation and preparation of hemp.*

If ſuch a treatiſe can be properly diſperſed, and ſome planter induced to ſettle in North-America, who is well verſed in the proceſs, I am inclined to hope that in ſome few years they may adopt the improved method.

Then,

Then, and not till then, can we reaſonably expect the Engliſh traders to prefer the American to the Ruſſian hemp; and, though the undertaking will be ſlow in its progreſs, it is better to proceed on ſure grounds, by ſlow degrees, than to hazard the ſucceſs of the whole by a precipitate conduct.

Theſe are my general reaſons: to have enlarged on minute particulars, would have ſwelled this letter to an improper ſize. I ſhould now conclude, but there is another article of manufacture, flax, which hitherto I have but juſt mentioned, though of almoſt equal importance with hemp.

The only reaſon of my ſilence was, that I was loth to diſcourage the Iriſh, who are now engaged in that cultivation; yet as the Iriſh flax is employed in their own manufactures only, I ſhould think no prejudice could ariſe to them from encouraging the growth in North-America, for the conſumption of England and Scotland.

Beſides the general arguments, applicable to every commodity, of ſaving a very large annual expence, promoting the cultivation of more raw materials, and the conſequential encreaſe of our own manufactures, I ſhall offer ſome particular reaſons, which only relate to this commodity.

It is well known, that all our colonies are, both in ſoil and climate, proper for the growth of flax; and as our territories are very extenſive, we may hope for flax of different degrees of fineneſs; from Georgia and Carolina, equal to the flax of Ægypt or Syria; and a ſtronger, but not leſs uſeful ſort, from our more northern provinces.

It is likewiſe certain, that the plants are by nature equal to any in the known world; for the American flax-ſeed is as much eſteemed in Ireland as that from the Baltic: and if theſe reaſons are added to the foregoing general arguments, I ſubmit it to the gentlemen of the ſociety of arts, *&c.* whether another premium ſhould not be offered for the beſt treatiſe *on the ſoil and cultivation proper for flax, with the beſt method of preparing it for manufacture*; ſubjoining this query, whether the Iriſh would be loſers ſhould the ſcheme ſucceed, as they might improve their linen ma-

nufacture by importing flax of a better quality, from America, than any they can produce from their own ſoil.

I ſubmit this paper, Gentlemen, to your peruſal, hoping, if it is printed in your *Muſeum*, it may of courſe find its way to the ſociety of arts, *&c.* who alone are capable of carrying ſo extenſive a ſcheme into execution *.

I am, GENTLEMEN,

With the trueſt reſpect, yours, *&c. &c.*

Feb. 11, 1764. S. R.

P. S. On reading over this letter I find ſeveral inaccuracies in the matter, and many more in the ſtyle, which I ſubmit to your correction: I ſhall only excuſe the firſt by ſaying, I endeavoured to be right, and I believe my general reaſoning is ſo; and, as for the latter, I think it no reflection to have it ſaid, that I was more attentive to the matter than the ſtyle.

NUMBER CVI.

A Letter from Mr. B. Rocque, *of* Walham-Green, *to the Rev. Mr.* Kellett, *of* Yarmouth, *on the Culture of Burnet* †.

SIR,

YOUR ſix acres of land, upon which you have turneps, will do incomparably well for burnet: as ſoon as your turneps are cleared off, plow your ground, for the firſt time, the ſame depth it was plowed for the turneps; we we will ſuppoſe this to be in March: about the middle of May trench-plow it; that is to ſay, the plow muſt go over the ſame place twice; which is to break the ſtaple of the ground, and to facilitate the growth of the burnet-root. I know

* This gentleman's future correſpondence will do us honour, and will, we imagine, beſides be of conſiderable benefit to the public. E.

† The editors cannot enough acknowledge their obligations to Mr. Rocque, for the favour of communicating the above piece. E.

know no graſs whoſe roots grow ſo quick in the ground as that: I have found roots of it, which had been ſown in Auguſt, to be between two and three feet long in the month of March following.

Burnet does not make a tap-root, like ſaintfoin, or lucern, but makes ſeveral tap-roots: in the middle of June you muſt trench-plow it again, as you have done in May; but be aware not to trench it deeper than the firſt trenching, for fear of bringing up dead ſoil; which if you did, it would be a long time before your plants would take a good hold of the ground.

Harrow and roll your land well after the laſt trenching; then ſow your twelve pounds of ſeed *per* acre; and after ſowing harrow it again with a light harrow, for fear it ſhould be buried too deep: then roll it, and let it lie till the month of Auguſt; then, if you find your ground is very weedy, harrow it backwards and forwards, inſtead of hoeing it; and be under no apprehenſion for your burnet, for it runs too deep in the ground to receive any hurt: but in caſe the harrow ſhould leave any weeds, they muſt be either hoed, or weeded by hand.

As you can ſow it but in June, I would not adviſe you, though it will be very rank in Auguſt, to feed or cut it till January or February; then you may go on feeding it till the firſt of May.

My reaſon for not feeding or cutting it ſooner is, that all graſſes that grow ſo faſt ſpend themſelves too much while they are young: as all other graſſes are plenty at that time of the year, you may preſerve your burnet till you have no other graſs, as you will feed it till the firſt of May: you muſt let it grow afterwards till you ſee the ſeed ripens, which will be about the middle of June; then reap or mow it, and threſh it, as I ſaid *, between wet and dry, if you want to preſerve the ſeed. After it is threſhed, dry it thoroughly, then put it where you will; and as to the chaff, dry

* See pages 295, 296, 306, 308, where the culture of burnet is treated of by Mr. Rocque in ſeveral letters formerly communicated to us by him. E.

dry that likewiſe well, and keep it in a very dry place; for I look upon it to be as good as bran or pollard for cattle: 'tis alſo my opinion, that when you feed cattle with burnet-hay, little or no corn will be wanting; for I have fed a horſe upon burnet ſtraw and chaff only, ever ſince the ſixteenth of Auguſt; and all, who have ſeen him, admire him for the firmneſs of his fleſh and his good look.

I forgot to mention that burnet is always green, even when the ſeed is ripe: no dry weather ſtops it, for I have ſeen fennel periſh by it, and it remained always green and thriving.

I ſhall take particular care to ſend you the ſeed againſt your ground will be ready; for I have had ſuch demands for it, I have none at preſent: that will be about the middle of June; and you will find you'll be almoſt as forward as if you had ſown it in April.

If you have horſes which have the greaſe, or any humour, turn them upon your burnet, even the firſt year, in Auguſt. I have cured one, they reckoned incurable, of the greaſe by that means; but obſerve, 'tis only the firſt crop has that effect.

I am,

Walham-Green, Yours, *&c.*

Feb. 16, 1764. B. Rocque.

NUMBER CVII.

A Letter to the Editors, from Mr. Holdway, *on the Culture of Saintfoin in* Wiltſhire.

Gentlemen,

IF I underſtand you right, you would now and then be glad to have a letter or two from a practical farmer: ſuch have I been for many years.

In this ſentiment I intend to beſtow an hour of my time on your work. I am an old man: if therefore my ſtyle and

hand-writing ſhould not be of the beſt, you muſt e'en excuſe it, or correct it as you pleaſe.

About one hundred years ago the culture of ſaintfoin * was firſt introduced into Wiltſhire, and was ſoon preferred to clover graſs; and there was indeed ſome reaſon for this preference, for it thrives much better, and yields a much larger encreaſe, on poor hungry ſoils, than clover can do.

Another very good reaſon may be aſſigned why ſaintfoin was ſo well received. The ſowing it at all was conſidered as a new huſbandry, and the timorous farmers were very unwilling to hazard the trial of any new method on lands which would any other way yield them any conſiderable advantage: it was chiefly in corners of fields, of very little uſe to the farmer, that this paſture was firſt tried, and that on poor land, as, ſhould it not have ſucceeded, the only loſs would have been the ſeed; yet many occupiers of land would not, at firſt, hazard even this trifling loſs.

But the ſentiments of theſe farmers were ſoon altered in this matter: clover wears out in a few years, whereas many, who ſowed ſaintfoin on poor land not worth above ſix ſhillings an acre, found their land ſo much improved, as to be very ſpeedily worth thirty ſhillings the acre, and at the end of twenty years it continued yet in good proof.

In fact, it will thrive, and be a very conſiderable improvement, on the pooreſt, and ſeemingly the barreneſt land; but it muſt be remembered, that ſheer and ſlight ſands, and all clays, and other cold and wet ſoils, are to be excepted; on rich land the weeds ſoon deſtroy it. Beſides, as it ſends its roots very deep in ſearch of nouriſhment, the longer it occupies the land, the more good it does it; whereas this is far from being the the caſe with ſhallow-rooting plants.

A ſaintfoin lay may at any time be broke up, when it will be ſure to yield ſeveral good crops of corn, and may after-

* For the various methods of cultivating ſaintfoin, recommended by our correſpondents, ſee No. VIII. page 36. No. XXII. p. 108.

afterwards again with good ſucceſs be ſown with ſaintfoin; and one principal reaſon why it thrives ſo well on poor lands muſt be the length of the roots, by which it is enabled to reſiſt the parching heat of the ſun better than moſt other graſſes are.

One thing I muſt notify, which is, that I am by long experience convinced that the land cannot be made too fine for ſaintfoin; it thrives the better for it, and is the more certain to take.

I have often, with very good ſucceſs, ſown it with oats and barley in the manner clover is ſown, the proportion much about equal to the grain it is ſown with; for as the ſeed of ſaintfoin is much larger and lighter than clover ſeed, of courſe a larger quantity ſhould be ſown: it is much beſt for the plants to come up thick; the ground is thereby ſooner ſtocked, and the weeds are eaſier kept under.

Some in this county have ſown it in rows with intervals, to afford a better opportunity of deſtroying the weeds; and I have heard that on tolerable rich land, apt to produce weeds, it has done very well in this way; but as I never experienced it, I ſhall not enlarge on that head.

It is beſt not to feed it the firſt year; but whether it is ſown by itſelf, or with any other crop, it may be mowed the firſt year.

It is much beſt, if a good crop is deſired, and it is to continue any time to the land, to ſow it in autumn by itſelf, the earlier the better: the proper ſeaſon is from the beginning of Auguſt to the end of September; but if you mix it with other grain, let it be ſown from the beginning of February to the end of March; the earlier in either ſeaſon, the better.

I have, I think, before obſerved that the land cannot be made too fine for this plant; and it ſhould be well harrowed before ſowing, and again harrowed afterwards to cover the ſeed.

I muſt once more repeat, that it muſt not be fed the firſt year; for the ſweetneſs of the graſs will cauſe the cattle to bite it too near the ground, which will greatly injure your crop: in fact, it is our practice not to let great cattle feed it

till

till the third year, particularly in grounds that are inclineable to moiſture; for the roots are tender, and much treading is very injurious to it.

When the ground is well covered, ſuppoſe in the third year after ſowing, if you intend to mow your ſaintfoin, it is beſt to lay it up by the middle of April at fartheſt; but it is better done three or four weeks ſooner. The time for cutting it is when it begins to flower, as it is then fulleſt of ſap: this will ſometimes be about the middle of May, but often later, according as the ſpring is cold or warm.

In feeding it ſome neceſſary rules are to be obſerved. In the ſpring turn in your great cattle, and you may be pretty certain the buds will not be cropped too near. Oxen thrive well on it, without the danger, at their firſt grazing, that is to be apprehended from clover, &c. yet even this danger chiefly ariſes from the negligence or ignorance of the hinds.

In the autumn, and part of the winter, you may feed your ſheep on it, which, if in health, will thereby be very ſuddenly fattened.

Saintfoin hay is excellent food for horſes, and they are uncommonly fond of it.

If you turn your cows in ſpring in your ſaintfoin lay, you will find it will breed in them abundance of milk; and all my acquaintance know that the butter made of it is excellent.

When it is intended to ſave the ſeed of ſaintfoin, it is beſt to roll it in the ſpring, that the ſtones may be preſſed down, and the ſcythe go cloſe to the ground; or elſe the beſt ſeeds, which grow on the lowermoſt joints, will be loſt.

When land is inclined to moiſture, ſaintfoin may thrive very well on it till a wet winter comes; but it is then a great chance if it is not deſtroyed.

In this county it has long been the opinion of the ableſt farmers, that it is beſt not to dung our ſaintfoin; for the dung ſerves only to encourage weeds, and ſeldom reaches

deep enough to give any ſupply of nouriſhment to the roots of the ſaintfoin.

I have, if I miſtake not, before obſerved that the treading of great cattle, particularly in winter, is hurtful to this graſs: I would therefore by no means adviſe the farmer to fodder his cattle on it, as the field will thereby be poached full of holes, in which the wet lodging, it is a chance but the roots of the ſaintfoin are rotted by it.

I have often fed my ſheep in winter with ſaintfoin hay; but whenever I intended this, I always cut my ſaintfoin ſome little time before it flowered: it is very eaſy to obſerve when the flower cup is forming: the ſheep will eat it very clean, and thrive well on it, provided it is not old and ſticky.

When I ſay that ſheep in autumn will fatten very ſuddenly on ſaintfoin graſs, it muſt be obſerved, that I did not mean the aftermath of ſuch as had been mowed that ſeaſon; but the ſecond growth, when the field had been for ſome time ſhut up after the great cattle had fed it in the ſpring. The aftermath is, it is true, good for ſheep; but, I think, not quite ſo good as the aftermath of natural graſs; at leaſt, this I am certain of, that turn ſome ſheep into a field where there is a mixture of natural graſs and ſaintfoin, both of which have been mowed, they will to chuſe eat up the firſt, before they touch the other with any degree of appetite.

Saintfoin ſhoots very early in the ſpring, and to nip it in the bud is very injurious; I would therefore adviſe that the ſheep be taken out about Chriſtmas, ſoon after which time it often begins to grow.

Some of our Wiltſhire farmers have had a cuſtom of ſowing their ſaintfoin ſeed under furrow; but I do not much approve of this practice, though they ſay in light land it cannot be buried. I am,

GENTLEMEN,

Your humble ſervant,

A. HOLDWAY.

Marlborough,
February 2, 1764.

NUM-

Square

Inch	7.92	12	36	60	198	792	7920	7920	63360
62.726	Link	1.515	4.56	7.575	25	100	1000	1000	8000
144	2.295	Foot	3	5	16.5	66	660	660	5280
1296	20.755	9	Yard	1.66	5.5	22	220	220	1760
3600	57.381	25	2.778	Pace	3.3	13.2	132	132	1056
39204	625	272.25	30.25	10.89	Pole	4	40	40	320
627264	10000	4356	484	174.24	16	Chain	10	10	80
1568160	25000	10890	1210	435.6	40	2.5	Rood	1	8
6272640	100000	43560	4840	17424	160	10	4	Acre	8
4015489600	64000000	27878400	3097600	1115136	102400	6400	2560	640	Mile

Long

NUMBER CVIII.

Explanation of the Table annexed.

IN an engraved table annexed, communicated to this work by a very ingenious and public-ſpirited gentleman, may be ſeen all the different meaſures by which quantities of land are calculated; and how often one is contained in another, either in long or ſquare meaſure; and this by the plaineſt, eaſieſt, and moſt intelligible method.

Having found the two titles, the eye is to be directed in a ſtrait line till the two lines meet in one center: in one way it diſcovers the number of the leſſer meaſure in the greater, in long meaſure; in the other way, in ſquare meaſure: thus, for example,

In a *mile* long there are 1760 *yards*.

In a *mile* ſquare there are 3,097,600 ſquare *yards*.

Nothing can be more ſimple than this method, as muſt be very apparent from the ſlighteſt attention to the plate; and it cannot fail being very uſeful in the admeaſurement of land, as it will ſerve by way of artificial memory, and greatly abridge the calculations.

NUMBER CIX.

A Letter from a Member of the Society of Arts to the Editors, recommending the Chichling Vetch for Cultivation, as an artificial Paſture.

GENTLEMEN,

I See with pleaſure the number of premiums granted by the ſociety for the culture of plants for artificial paſtures: the importance of this object is very well known by every one in the leaſt acquainted with the modern methods of agriculture: in fact, the greater the variety of plants raiſed

for this uſe, of ſo much the more ſervice will it be to the community, as every different kind of ſoil may then be ſuited.

This conſideration it is has induced me to trouble you with this letter, hoping ſome acting member of the ſociety will propoſe a premium on the ſubject in ſome future meeting.

I might, it is true, have mentioned this myſelf in the ſociety, but I think this way of communicating it to the members moſt eligible, as I have hitherto been only a *hearer*, and hate *long ſpeeches*.

But to come to the point: I could wiſh to ſee a handſome reward offered by the ſociety for encouraging the culture of the *broad-leaved chichling vetch*, the *lathyrus latifolius*, C. B. p. 344. and in the Hort. Cliff. is entitled, *lathyrus pedunculis multifloris, cirrhis diphyllis, foliolis lanceolatis, internodis membranaceis.* The gardeners call it the *common everlaſting pea.*

This plant is a perennial, grows naturally in ſome parts of England, is eaſily cultivated, and the root yields every year a great burden of excellent provender.

Theſe are great inducements for encouraging the culture of it; and particularly as, from the experience I have had of it, I have reaſon to think it will grow in almoſt any ſoil.

I obſerved, I had ſome experience in this matter: part of this experience I ſhall now communicate for the benefit of your readers.

I ſowed, three years ago, a rood of land, light, and but poor in quality, with this ſeed: this work was done early in the ſpring, the land being prepared as for barley.

I ſowed it not in the broad-caſt way, as I ſhould have found much more difficulty to keep down the weeds; but I cauſed a ſlight furrow to be drawn the length of the land with a light plow; and when the ſeed was thinly ſprained, or rather dropped into this, another was drawn at a foot diſtance, in which the ſeed was dropped in like manner.

An interval, or fallow ſpace, was then left at leaſt two feet wide; then two more rows of the vetches; till the

whole land was ſown. I muſt obſerve, that I covered the ſeed by means of a light harrow with wooden tines, drawn backward and forward *acroſs* the land.

When the plants came up, I had them well hoed, to clear the ground of weeds; and when they grew a little ſtrong, they were ſet out with the hoe to about a foot diſtance in the rows, that they might have room to ſpread and branch.

The firſt year they yielded no great quantity of fodder, but they have ſince made me ample amends.

The ſecond ſpring they came up very ſtrong and vigorous, branching out much; and when I turned a couple of horſes in to feed, they were very fond of it, eating it very greedily, though they were taken out of a good, natural upland paſture.

This laſt ſummer the land was almoſt entirely covered, and it yielded a great deal of feed indeed: for experiment ſake I cauſed a few rods to be mowed juſt before it flowered, and it made good hay, ſweet, without being ſticky.

I think, Gentlemen, from my little experience in the matter, I have ſome foundation for recommending this plant to the notice of the public: I could wiſh, indeed, I had been more accurate in my experiment; but what is paſt cannot be recalled; and ſome other of your correſpondents may, perhaps, hereafter give the public more uſeful information on this head.

The above is not the only chichling vetch that is worth cultivating; there is one with a purple flower, which would very well repay the pains the farmer ſhould be at in ſowing it: this is the *lathyrus ſativus flore purpureo*, C. B. p. 344. and in ſome countries is cultivated for the ſake of its ſeeds, which ſerve to feed poultry, pigeons, *&c.* and are no deſpicable feed for horſes, inſtead of oats: it grows wild in Italy, but will thrive very well in England; and the ſtalks and leaves make, as I am informed, good fodder, green or dry. It ſhould ſeem, by this, to be worth trying; particularly as it will grow on almoſt any ſoil, and requires but little cultivation, not more than is in general beſtowed on tares: it may be ſown broad-caſt, as it does not riſe very high;

high; and if ſown pretty thick, it will go near to keep down the weeds.

I will not pretend to ſay that theſe plants poſſeſs all the advantages *burnet* can boaſt of, which is, I ſee, ſo ſtrongly recommended, in your collection, by Mr. Rocque, of Walham-Green; yet in ſome particular caſes it may be more advantageous to the farmer to cultivate the chichling vetch than the burnet, as I am apt to think the laſt is more nice with reſpect to the choice of ſoil; but this matter may be better decided ſome years hence, when the chichling vetch has been tried by experiments made with a greater degree of accuracy and preciſion than mine were: the truth of the matter is, that at the time I made the experiment I had no great leiſure, and little expected I ſhould ever have either inclination, or a proper opportunity, of publiſhing my thoughts to the world; neither ſhould I have done it at preſent but that your work offered itſelf ſo *à propos*.

I muſt, before I conclude, obſerve to you, that when I had cut a few rods of the firſt-mentioned ſort of chichling vetch, to make into hay, a ſmall quantity of it was, by accident, ſpread thin on the ground, ſo as to receive the full action of the ſun's rays: this was, in a manner, ſpoiled, becoming quite dry, inſipid and brittle, and almoſt all the leaves dropping off; but the remaining part, which was dried either in ſmall cocks, or thick ſwarths, made excellent hay: by this I am perſuaded, that the laſt method is by much the beſt *.

I am, GENTLEMEN,

Bath, Your very humble ſervant and admirer,

Feb. 1, 1764. CLERICUS.

* Many farmers chuſe to make even their meadow-hay, letting it always lie in what they call graſs-cocks, turned every day with a fork at one motion; they think this the ſafeſt way, as, in caſe of rain, the hay takes leſs damage. E.

NUMBER CX.

A Letter to the Editors, recommending the Propagation of Saxifrage *in our Meadow Lands.*

GENTLEMEN,

AS the genius of agriculture ſeems at this time to have riſen from a long ſlumber, and my countrymen are in earneſt endeavouring to bring about a reformation in the methods hitherto practiſed in the works of huſbandry, permit me to ſupply a hint at leaſt towards this ſalutary end.

It has long appeared to me matter of ſurpriſe, that graſſes ſhould have been, till lately, thought unmeriting of culture. Our meadows have been moſt ſhamefully neglected; many, very many are, even now, over-run with coarſe, rank, and noxious graſs, weeds, ruſhes, *&c. &c.* did the fault lie in the land, the farmer would not be ſo much to blame; but experience has long ago convinced me, that even the ſoureſt meadows may with proper care be cured, in a great meaſure, if not entirely, and almoſt doubled in point of annual value.

It is ſtrange that people ſhould be ſo very fearful of plowing up a meadow: though they ſee it over-run with weeds and traſh, which unprofitably impoveriſh and exhauſt the ſoil, they avoid the means of remedying the evil; they are apprehenſive of ſpoiling their turf, and imagine that the longer the land has been laid down, the ſweeter and more nouriſhing is the little *graſs* it yields.

For my part, I can ſee no reaſon why we ſhould not *cultivate* and encourage the growth of particular plants in our meadows, as well as in our fields in tillage. When we know of graſſes which are every way adapted to the ſoil of meadows and low grounds, why ſhould we not, in reaſon, rather ſow in a regular way ſuch graſſes there, than truſt to the ſpontaneous produce of the ſoil, if I may be allowed ſo to term it?

Every

Every farmer knows which ſort of graſs he would wiſh to have predominant in his meadows: it would ſurely be very eaſy for him to ſave ſome of the ſeeds of ſuch graſs, and propagate it a-part till he had ſaved ſufficient to ſow, ſuppoſe an acre of land with it pure and unmixed: when arrived at this point, he might propagate it as extenſively as he thought proper.

I muſt not however forget the chief intended ſubject of my letter, which is, to recommend to your readers the ſaxifrage as a plant proper to be intermixed with the graſs of their meadows.

I have now in my holding above thirty acres of meadow land, which fortunately for me bear a graſs that needs no improvement; though this I in part attribute to my having drained my land properly ſome years ago, ſince which the bite is much improved.

Amongſt this graſs in my meadows there grows a conſiderable quantity of *ſaxifrage*; which, in the opinion of all the dairy-men in my neighbourhood, is the reaſon my cheeſe is ſo particularly good.

Now, Gentlemen, I ſhould imagine that when a farmer has plowed up a foul meadow, and intends ſowing it with good graſs ſeed, it would be no difficult matter to procure a ſprinkling of ſaxifrage-ſeed to mix with it: this would certainly be of ſervice; and we ſhould not deſpiſe this excellent plant becauſe it is common, and not far-fetched: there is great plenty of it in the Netherlands, in their fineſt cow-paſtures; and that I have often heard aſſigned as a reaſon for their having ſuch quantities of cheeſe of a ſuperior quality; though I muſt at the ſame time own, I have in London taſted ſome Dutch cheeſe, ſtuffed full of cloves, which was not the beſt in the world; but this might have been an accident, for they ſay their cheeſe is in general excellent.

But, to return to my immediate ſubject, I would by all means recommend the propagation of the ſaxifrage plant in meadows, not only on account of its great uſe in improving the quality of cheeſe, and butter alſo, which it does;

but

but becauſe it is a native of our iſland, and there is no danger of its ſucceeding to the farmer's wiſh; which cannot be ſaid of every plant recommended for cultivation.

But it muſt be remembered, that I do not recommend it to be cultivated alone; I never tried it in that manner: that it will thrive very well when mixed with good meadow graſs, daily experience convinces me; and this method it is I urge.

I ſhould be glad if ſome of your ingenious correſpondents, of which you ſeem to have many, would inform me what is the beſt kind of graſs to ſow in a field I have, the ſoil of which is quite a thin coat of very light loam over a deep bed of hard gravel *. I want to lay this field down in paſture, it being ſo convenient, as lying near my houſe; and I ſhould be glad to be informed in what manner I can do it to the beſt advantage. I ſhould have obſerved, that the little ſoil there is over the bed of gravel is in good heart.

It muſt, I am ſenſible, be ſome plant that will ſtrike deep into the gravel, which will thrive here; for ſhould it not do ſo, a few weeks hot dry weather, in ſummer, would burn it up, and entirely deſtroy the yield of it.

Excuſe this trouble, as it was intended partly to give, and partly to receive inſtruction; for, with old *Chaucer*, *Gladly would I learn, and gladly teach.* With every aſſurance of approbation of your collection, I beg leave to conclude, that I am

Your moſt obedient ſervant,

Lancaſter, And conſtant reader,
Jan. 30, 1764. E. L.

* We ſhould have been glad if our correſpondent had informed us how thin the upper coat of earth is, and what is the nature of the under-ſtratum of gravel. E.

NUMBER CXI.

A Letter to the Editors, on the Uſes to which Beech Maſt is applied in Hertfordſhire, *&c.*

GENTLEMEN,

OUR pork, in this country, is far from being the worſt that England affords; yet are our pigs fed for months together on beech maſt only, owing to the great number of beech trees which grow in a manner ſpontaneouſly in the county of Hertford.

When the maſt happens to be plentiful, which is, perhaps, three years out of ſeven or eight, we turn out our hogs to feed on it about the middle of October, and ſometimes rather ſooner.

On this food they thrive to a wonder, inſomuch that many porkers are killed in a year, fatted on beech maſt alone, and which generally turn out fine meat: however, when a hog is intended to be killed for pickling, it is much the better way to take him up, and give either pollard, barley meal, or peas, for a month or five weeks, when he will be fit for the tub.

This article is of very great ſervice to the poor, as an indigent labouring man is thereby enabled, with very little help of other food, to kill two or three pigs, which ſhall, when pickled, ſupport his family the greateſt part of the year, and without which help he muſt fare poorly indeed.

Yet, after all, there are ſome diſadvantages attending it, which muſt be carefully guarded againſt, or the loſs will be great; and, in fact, the ſame diſadvantages attend feeding hogs with acorns.

The inconvenience I mean is, that hogs are apt, without great care, to get the *garget* when they live on this food. To prevent this, the beſt way is to moiſten ſome peas or beans with water, and ſprinkle over it ſome antimony pounded and ſifted; and this ſhould be repeated every other

day

day for a fortnight, or three weeks, and it will effectually preſerve them from the diſorder.

Many poor men will gather acorns, in the ſeaſon, in large quantities, in order to give them to their hogs to bring them forward in their fleſh. Theſe acorns muſt not, however, be given to them in the ſtate in which they are gathered; if they are, the hogs will certainly get the garget: they require preparation; but to do this is no great trouble.

Dig a hole in the ground in a warm place, large enough to contain ſeveral buſhels of acorns: in this let the acorns be put, and well moiſtened with water in which a handful or two of common ſalt has been diſſolved: in a few days they will begin to heat and ſpire; obſerve them, therefore, attentively, and when they have made a ſhoot about three inches long, take them out of the hole, and ſpread them to dry on a barn-floor, and in a day or two they will be fit to give to your hogs*: but this matter muſt alſo be managed with care and caution; they muſt not have too many given them at a time, at firſt; twice a day is often enough to feed them with the acorns for a day or two; afterwards three times a day: whilſt they eat this food, they are never to be confined in a ſtye, but ſuffered to run at large; for if they are too much abridged in their liberty, they never thrive well, or grow fat, on acorns.

It is no uncommon thing, with the management above directed, and the aſſiſtance of a little waſh, and a few grains now and then, for a farmer to kill ſeveral hogs in a ſeaſon, which ſhall weigh from eight to ten ſcore, and ſometimes even more.

Theſe hogs make very good meat; but it is not, I own, ſo fine as when the hogs are taken up, and have each of them four or five buſhels of peas or barley-meal given to complete their fatting before they are killed.

* This method of preparing acorns, in ſome meaſure reſembles the proceſs uſed in malting grain; and its intention muſt, we think, be to bring the acorns to a more perfect ſtate of maturity, and thereby correct the crude, and perhaps unwholeſome juices with which they abound when they are firſt bruſhed, or fall from the trees. R.

Moſt farmers are fond of the old breed of large Engliſh hogs; but for my part, after many experiments made, and many trials reſpecting the profit of keeping either ſort, I own, I prefer the baſtard Portugal breed, as they are much eaſier kept in good caſe, and are, I think, better nurſes than the common Engliſh ſwine.

Another reaſon I have for preferring the ſort above mentioned, which is, that when I have a parcel of young pigs in winter, I find theſe ſows will fat them better, and make them ſooner fit for ſale than the others; and this, where a man keeps a number of ſwine, is an object worth regarding.

I find alſo, that this foreign breed is to be fatted with leſs food in proportion than our's: after a day or two they ſeem to bear confinement better, and eat, drink, and ſleep, without much fretting or whining.

Before I conclude, I muſt beg leave yet to make one obſervation more, which is, that I conſtantly find that the cleaner my hogs are kept when they are put up to fatten, the better they thrive. I thought it neceſſary to mention this, becauſe many are of opinion, that by being left to wallow in their dung, they grow fat the faſter: this is a great error; for I think I may venture to ſay, that a hog in a ſtye loves cleanlineſs; at leaſt, from all the obſervation I have been able to make on this animal, if they can be ſaid to love dirt, it is any dirt but their own.

I could enlarge more on this ſubject, which I have ſtudied much; but as I might poſſibly occupy a ſpace in your collection, which may more uſefully be filled by ſome of your able correſpondents, I ſhall for this time forbear.

Though I am modeſt enough to think you have many more able correſpondents than myſelf, yet I am vain enough to hope this will find a place in your next publication. Believe me,

GENTLEMEN,

Hertford, Feb. 6, 1764.

Your aſſured friend,
S. T.

NUM-

NUMBER CXII.

To the Editors of the MUSEUM RUSTICUM.

GENTLEMEN,

AS I imagine, from what has already appeared of your public-ſpirited deſign, that it is calculated to bring improvements of every kind, that have the leaſt connection with huſbandry, to light, and to introduce them to the notice of thoſe who can receive any advantage from them, I take the liberty of ſending you the encloſed ſketches of carriages conſtructed for the uſes of agriculture; and if any vacant place ſhould be ſpared me by your more uſeful correſpondents, ſhall beg you to let them appear in your inſtructive collection.

I have ſeen ſomething reſembling one of the carriages in a French book; the others are, I imagine, entirely new.

As I am but a very indifferent draughtſman, I hope the inaccuracy of the drawings will be excuſed; particularly, as, from the evident abilities of your engraver, I am convinced they can be eaſily corrected by him.

Fig. 1. plate IV. is a wheelbarrow, in which a broad wheel, three feet diameter, is placed at A, and covered over with a box.

B, the wheel, lying between the two extremes, if the weight is placed equally on each ſide of it, preſerves the barrow in equilibrio, and requires no labour but to puſh it forwards; whereas, in the common barrows, half the weight is to be ſupported by the labourer.

Fig. 2. is a barrow of another conſtruction: A is a large cylinder, like thoſe with which gravel-walks are rolled. It may be made of caſt iron, as the common rollers, or of wood.

B B, two buckets, which are to carry the burden, equally divided between them. The ſides, C C, of the two buckets, ſlide out, ſo as to let the burdens fall out, by ſucceſſively lowering the two extremes.

This

This has the advantage of the former barrow, and avoids marking the graſs or gravel over which it rolls; an inconvenience that attends all the machines of this kind now in uſe. It ſerves alſo for a roller, and is particularly ſerviceable in making gravel-walks. From the figure it appears, that a cart might be made upon the ſame principle, which might ſerve to roll land, but would be of moſt ſervice in the making artificial levels, *&c.* in gentlemen's improvements.

Fig. 3. is a cart for hay: the wheels ten feet high, and ten inches broad: the axle, A, longer than is common, and paſſing through the body of the cart, to prevent its being liable to over-turn, and to make the ſhafts on a level with the horſes breaſts.

It is peculiarly adapted to carry hay, as by its breadth it will ſpread that hay which in other carts they are obliged to pile up ſo high as to endanger the carriage and its horſes.

In the former part of this letter I made an apology for the inaccuracy of the annexed drawings: I muſt beg leave to renew it, as, upon looking over them, I perceive them to be very imperfect.

I have models making of wheels of various diameters and breadths, with proper carriages, to aſcertain, by experiments, the proper mean in both theſe points, *viz.* their length and breadth, ſo as to give the greateſt power, and at the ſame time avoid the danger of overſetting, attendant on high wheels; and the weight gathered by very broad wheels in a ſtiff ſoil.

I ſhall alſo endeavour to find out the moſt proper point on which the bulk of the weight ſhould be placed in four-wheeled carriages, as I have obſerved, that when the weight is thrown a great way behind the hindmoſt wheels, the carriage moves with more eaſe.

If the reſult of theſe experiments ſhould ſuit your deſign, I ſhall think myſelf happy in communicating them to your ſociety *.

I am, GENTLEMEN,

Oxford, Your admiring reader,

Jan. 29, 1764. R. L. E.

* This gentleman has already laid us under a great obligation, and he will double it by continuing his favours. E.

NUMBER CXIII.

A Letter to the Editors, from Mr. Bellas, *of* Yattendon, Berks, *containing an Improvement on the Waggon.*

—— *Levi certamine ſuperantur.*

GENTLEMEN,

I Take this method of conveying to the public an improvement upon the waggon *.

Having obſerved the bad conſequences of turning ſhort with a heavy load, *viz.* broken wheels, thills, traces, *&c. &c.* I was inclined to be at ſome little expence of thought, in order, if poſſible, to guard againſt them.

This I have done by two chains, about two feet in length each, to be fixed at one end by a pin about three quarters of an inch diameter, through the fore bed, about one foot behind the upper pillow, and key'd; the other through the under pillow, by a pin about one foot in length, and a nut, to ſcrew it to what length may be neceſſary: (ſee plate IV. fig. 4. and 5.) theſe chains, on each ſide one, to hang looſe when the waggon is drawn in a right line; but upon the turn to check it juſt before it locks. Thus guarded, the wheels will be at liberty to perform their office, but without it you are ſubject to all the inconveniencies above mentioned.

Mechanical improvements in theory are frequently clogged, either with ſome difficulty in the execution, or expence, which over-balances the advantages propoſed; but this is not ſubject to either, as I have applied it to my waggon, and it was executed by a common blackſmith for four ſhillings. The ſketch ſent herewith (ſee plate IV.) may perhaps make it more intelligible. I am,

Yattendon, Berks, Your conſtant reader,
Jan. 21, 1764. GEORGE BELLAS.

Fig.

* We are greatly obliged to Mr. Bellas for this favour, and ſhall ſet a proper value on his future communications. E.

Fig. 4. is a Berkſhire waggon with the check-chains fixed; the upper ſpokes of the fore wheel being omitted, in order to diſcover the poſition of the check-chain, and the manner of fixing it.

Fig. 5. is the check-chain more at large: at the end, *a*, is the iron pin and key; at *d* may be ſeen the iron, with the ſcrew and nut, by which it is faſtened to the under pillow: the dimenſions are as follow; from *a* to *b* meaſures ſix inches; from *b* to *c*, being the length of the chain, two feet; from *c* to *d* twelve inches.

N. B. The two check-chains, together, may weigh about eleven or twelve pounds.

END *of* VOL. I.

Fig. 4.

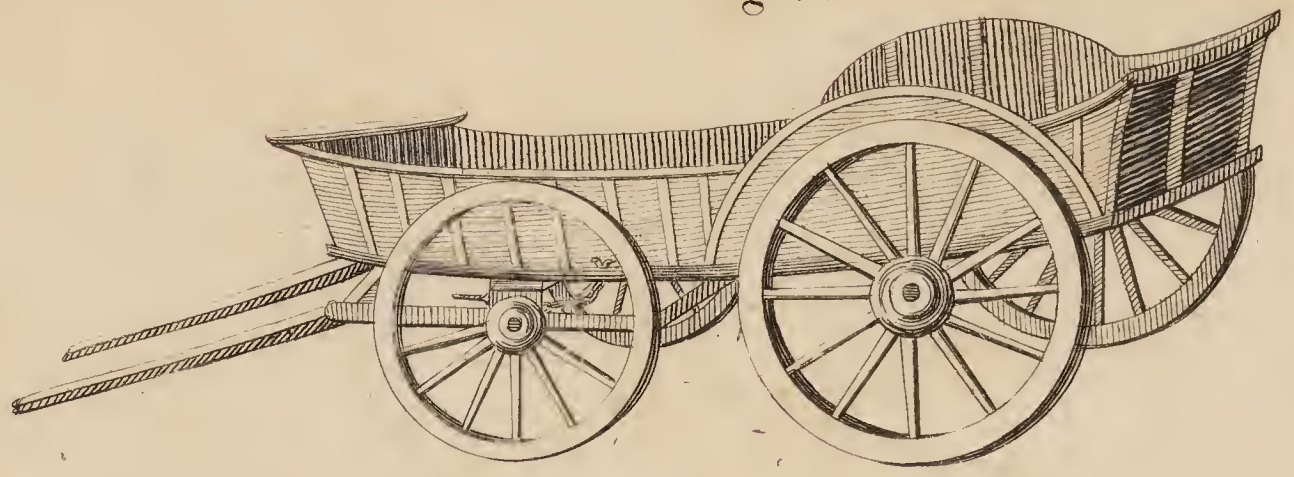


Fig. 3.

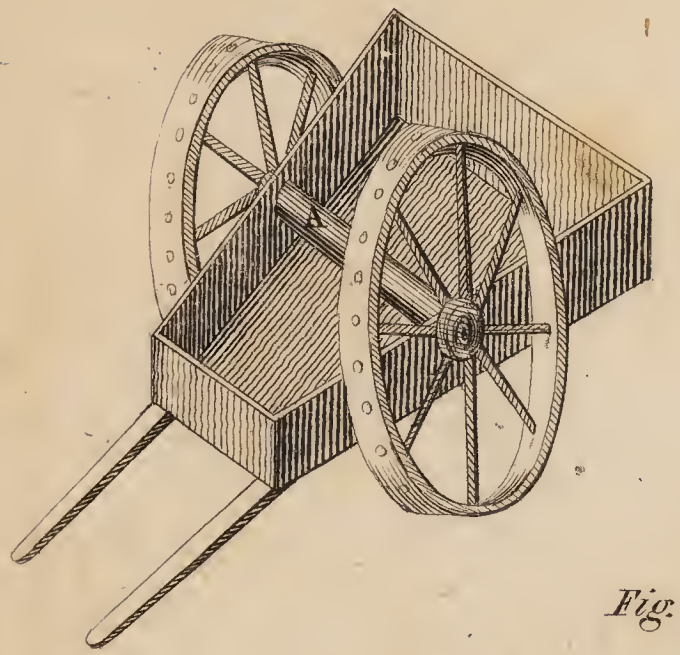


Fig. 5.

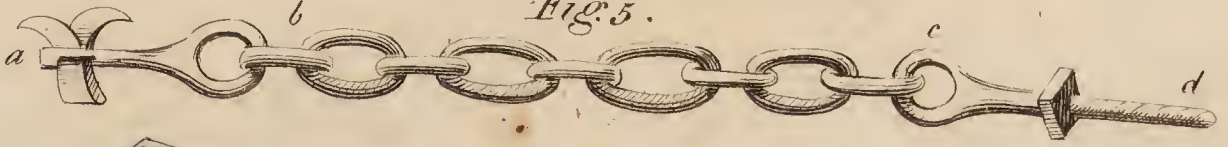


Fig. 2.

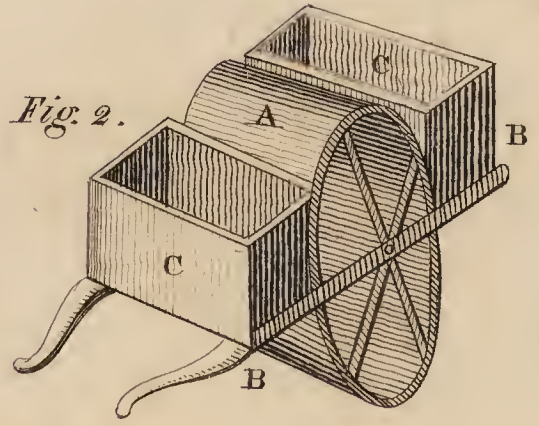
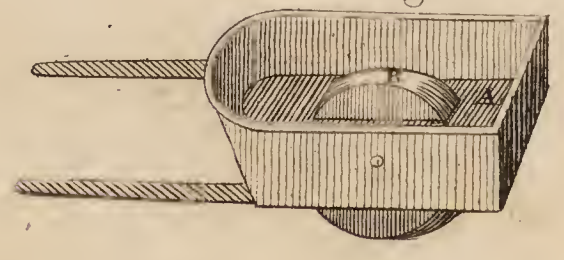


Fig. 1.



M. Darby sculp.

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